TYLER REFRIGERATION

Carrier
A United Technologies Company

Allegro SERIES™

# Installation & Service Manual



# TLM, TLF, TLD

## LIFT FRONT STRAIGHT GLASS MEAT/SEAFOOD/DELI MERCHANDISERS

### Medium Temperature Service Display Cases

**This manual has been designed to be used in conjunction with the General (UL/NSF) Installation & Service Manual. Save the Instructions in Both Manuals for Future Reference!**

This merchandiser conforms to the American National Standard Institute & NSF International Health and Sanitation standard ANSI/NSF - 7 2003.



| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
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Tyler Refrigeration * Niles, Michigan 49120

# CONTENTS

The following Medium Temperature Lift Front Straight Glass Meat/Seafood/Deli Service Merchandiser models are covered in this manual:

| **MODEL** | **DESCRIPTION** |
|---|---|
| **TLM** | **4’, 6’, 8’ & 12’ LIFT GLASS GRAVITY COIL MEAT SERVICE MERCHANDISERS** |
| **TLF** | **4’, 6’, 8’ & 12’ LIFT GLASS GRAVITY COIL SEAFOOD SERVICE MERCHANDISERS** |
| **TLD** | **4’, 6’, 8’ & 12’ LIFT GLASS FORCED AIR COIL DELI SERVICE MERCHANDISERS** |

# SPECIFICATIONS

## TLD Lift Front Straight Glass Blower Service Merchandisers
## TLM/TLF Lift Front Straight Glass Gravity Service Merchandisers

**Refrigeration Data:**

| MODEL | CASE LENGTH | CASE USAGE | CAPACITY (BTUH / FT) PARALLEL | CAPACITY (BTUH / FT) CONVENTIONAL | AVG. EVAP. (°F) | UNIT SIZING (°F) | DISCHARGE AIR AVG. TEMP. (°F) | DISCHARGE AIR VELOCITY (FPM) | AVG. REF. CHARGE (LBS/FT) |
|---|---|---|---|---|---|---|---|---|---|
| TLD | ALL | Deli | 410* | 615* | 17** | 13 | 22 | 450*** | 0.51 |
| TLM / TLF | ALL | Meat / Fish | 288* | 432* | 19** | 13 | 26 | N/A*** | 0.73 |

* Capacity data listed for cases with 1 row of T-8 top lights and 1 row of optional lighted mezzanine shelves. ADD 20 BTUH/FT for each additional top light or lighted mezzanine shelf. DEDUCT 20 BTUH/FT for each row of unlighted mezzanine shelves. For sizing all refrigeration equipment other than TYLER, use conventional BTUH values.
** Evaporator temperature is based on the saturated pressure leaving the case.
*** Air velocity measured 1 hour after defrost on the horizontal plane of the discharge air grill with an Alnor Jr. velometer.

FOR SPECIFIC COMPRESSOR SIZING INFORMATION, REFER TO TYLER APPLICATIONS FOR RACK SYSTEM COMPRESSORS AND/OR THE COMPRESSOR MANUFACTURERS FOR SINGLE COMPRESSORS. FOR LINE SIZING INFORMATION, REFER TO THE MISCELLANEOUS SECTION "BUFF" IN THE TYLER SPECIFICATION GUIDE.

**Electrical Data:**

Fans & Heaters (120 Volt)

| MODEL | CASE LENGTH | FANS / CASE | TOTAL STANDARD FANS AMPS | TOTAL STANDARD FANS WATTS | TOTAL ECM FANS AMPS | TOTAL ECM FANS WATTS | TOTAL AMBIENT FANS AMPS | TOTAL AMBIENT FANS WATTS | TOTAL ANTI-SWEATS AMPS | TOTAL ANTI-SWEATS WATTS |
|---|---|---|---|---|---|---|---|---|---|---|
| TLD | 4' | 2 | 0.34 | 30.2 | 0.22 | 11 | 0.16 | 19.2 | 1.59 | 190.2 |
| TLD | 6' | 4 | 0.68 | 60.4 | 0.44 | 22 | 0.32 | 38.4 | 2.45 | 293.8 |
| TLD | 8' | 5 | 0.68 | 60.4 | 0.44 | 22 | 0.48 | 57.6 | 3.22 | 385.9 |
| TLD | 12' | 7 | 1.02 | 90.6 | 0.66 | 33 | 0.64 | 76.8 | 4.85 | 581.7 |
| TLM / TLF | 4' | 1 | N/A | N/A | N/A | N/A | 0.16 | 19.2 | 0.94 | 112.6 |
| TLM / TLF | 6' | 2 | N/A | N/A | N/A | N/A | 0.32 | 38.4 | 1.43 | 171.2 |
| TLM / TLF | 8' | 2 | N/A | N/A | N/A | N/A | 0.32 | 38.4 | 1.91 | 229.8 |
| TLM / TLF | 12' | 3 | N/A | N/A | N/A | N/A | 0.48 | 57.6 | 2.89 | 347.0 |

T8 Lighting with Electronic Ballasts (120 Volt)

| MODEL | CASE LENGTH | CANOPY LIGHTS – PER ROW AMPS 1 ROW | CANOPY LIGHTS – PER ROW AMPS 2 ROWS | CANOPY LIGHTS – PER ROW WATTS 1 ROW | CANOPY LIGHTS – PER ROW WATTS 2 ROWS | SHELF LIGHTS – PER ROW AMPS 1 ROW | SHELF LIGHTS – PER ROW AMPS 2 ROWS | SHELF LIGHTS – PER ROW WATTS 1 ROW | SHELF LIGHTS – PER ROW WATTS 2 ROWS | NOSE LIGHT AMPS | NOSE LIGHT WATTS | MAXIMUM LIGHTING * AMPS (5 ROWS) | MAXIMUM LIGHTING * WATTS (5 ROWS) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TL(D/M/F) | 4' | 0.35 | 0.50 | 42.0 | 60.0 | 0.35 | 0.50 | 42.0 | 60.0 | 0.35 | 42.0 | 1.35 | 162.0 |
| TL(D/M/F) | 6' | 0.40 | 0.75 | 48.0 | 90.0 | 0.40 | 0.80 | 48.0 | 96.0 | 0.40 | 48.0 | 1.95 | 234.0 |
| TL(D/M/F) | 8' | 0.50 | 0.95 | 60.0 | 114.0 | 0.50 | 1.00 | 60.0 | 120.0 | 0.50 | 60.0 | 2.45 | 294.0 |
| TL(D/M/F) | 12' | 0.70 | 1.40 | 84.0 | 168.0 | 0.70 | 1.40 | 84.0 | 168.0 | 0.70 | 84.0 | 3.50 | 420.0 |

* For cases with 2 rows of canopy lights and 2 rows of shelf lights. Mezzanine shelves are only approved for TLD cases.

**Defrost Data:**

| DEFROST TYPE | DEFROSTS PER DAY | DURATION TIME (MIN) | TERMINATION TEMP. (°F) | BACKUP PRESSURE SETTINGS * CUT IN | BACKUP PRESSURE SETTINGS * CUT OUT | EPR SETTINGS ** R22 (PSIG) | EPR SETTINGS ** R404A (PSIG) | DEFROST WATER (LB / FT / DAY) |
|---|---|---|---|---|---|---|---|---|
| TIME OFF – TLD | 4 | 34 | N/A | 50# @ R22 | 31# @ R22 | 36 | 47 | 0.90 |
| TIME OFF – TLM / TLF | 2 | 54 | N/A | 50# @ R22 | 31# @ R22 | 36 | 47 | 0.82*** |

* Used with electronic thermostat and EPR control. ** Set EPR to give this pressure at the case.
*** On TLM units, there is a moisture loss equal to 1.74 oz / ft² / 24hrs

| CASE-TO-CASE SUCTION LINE SUB-FEED BRANCH SIZING FOR CASE LINE-UPS (R-22 REFRIGERANT) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODEL | 4' | 6' | 8' | 12' | 16' | 20' | 24' | 28' | 32' | 36' | 40' | 44' | 48' | 52' | 56' |
| TLD | 3/8 | 3/8 | 1/2 | 1/2 | 1/2 | 5/8 | 5/8 | 5/8 | 7/8 | 7/8 | 7/8 | 7/8 | 7/8 | 7/8 | 7/8 |
| TLM / TLF | 3/8 | 3/8 | 3/8 | 1/2 | 1/2 | 1/2 | 1/2 | 5/8 | 5/8 | 5/8 | 5/8 | 5/8 | 7/8 | 7/8 | 7/8 |

**CONVENIENCE OUTLET CIRCUIT:** One single convenience outlet is on the back of the 4' and 6' cases and two single convenience outlets are on the back of the 8' and 12' cases. Plan suitable 15A circuits for these 120V outlets.

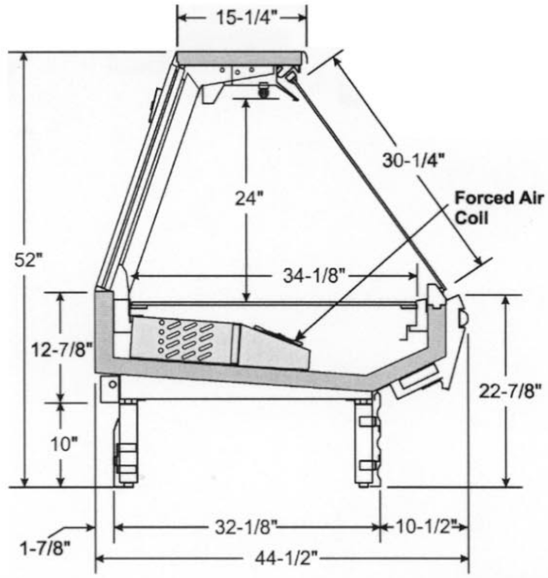
A suction stop evaporator pressure regulator along with an electronic thermostat should be installed on each system to aid in temperature control. Set the EPR for 36 PSIG (R22).

Shelves not recommended in gravity coil cases since they disrupt airflow and compromise performance. Blower style cases may use shelving. On TLD for merchandising with two rows of shelves, the top of the each shelf bracket should be mounted in the 7th and 15th slot from the top in the uprights.

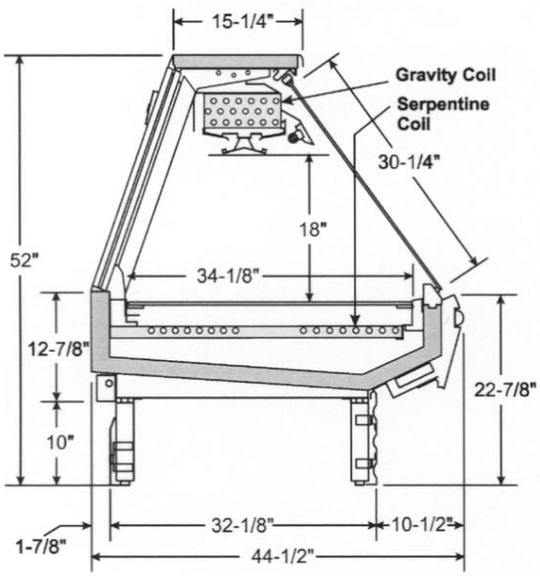
Pressure control settings shown in the above table are for backup purposes only. The actual temperature control should be set by the thermostat. TLM setting for this case = CUT IN @ 26°F and CUT OUT @ 22°F. TLF setting for this case = CUT IN @ 34°F and CUT OUT @ 33°F. TLD setting for this case = CUT IN @ 26°F and CUT OUT @ 22°F. For merchandising using well only on the TLD, set CUT IN @ 33°F and CUT OUT @ 29°F and set defrost for 4 @ 26 minutes each.

**NSF CERTIFIED** to meet ANSI/NSF – 7. **CASE BTUH REQUIREMENTS** are calculated to produce approximately the indicated performance with absolute maximum operating ambient limits of **75°F & 55RH.**

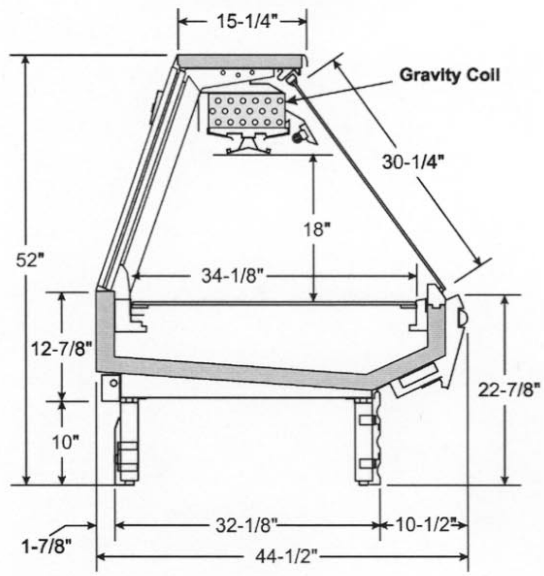
TLD CROSS SECTION



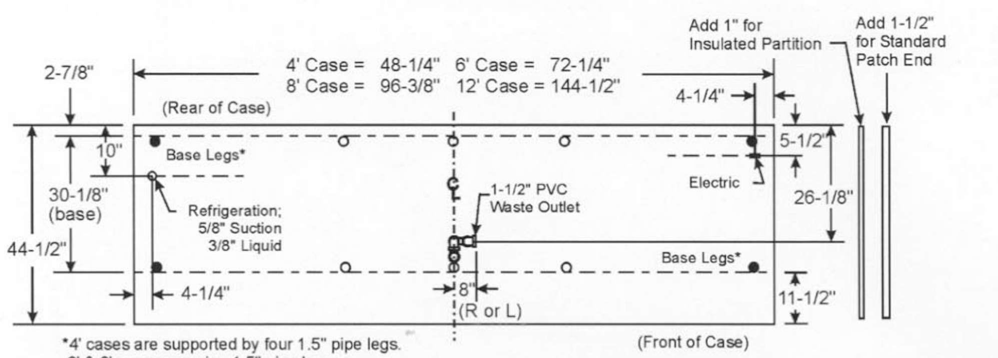

TLM CROSS SECTION




TLF CROSS SECTION

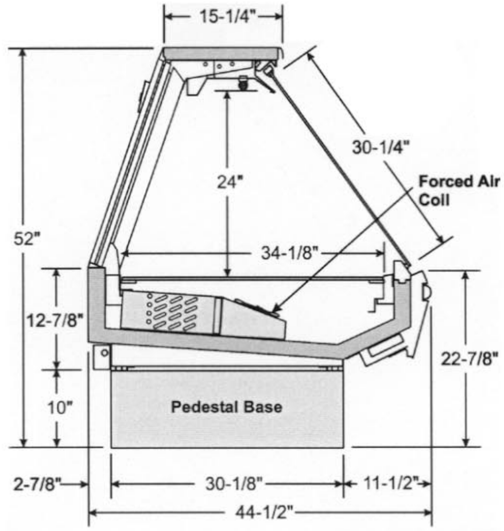



FLOOR PLAN

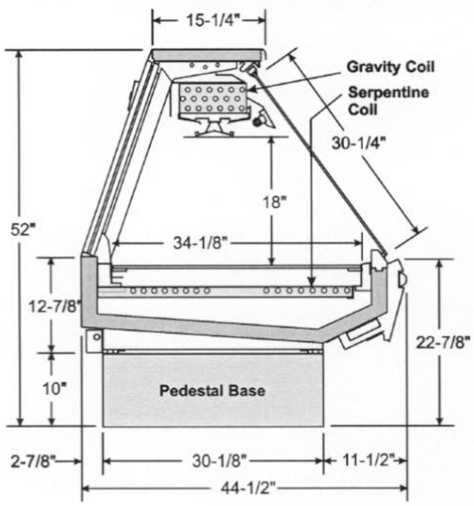



*4' cases are supported by four 1.5" pipe legs.
6' & 8' cases use six - 1.5" pipe legs.
12' cases use eight - 1.5" pipe legs.

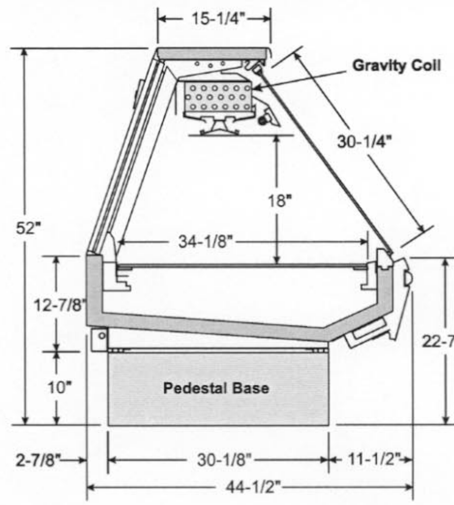
## TLD PEDESTAL BASE CROSS SECTION



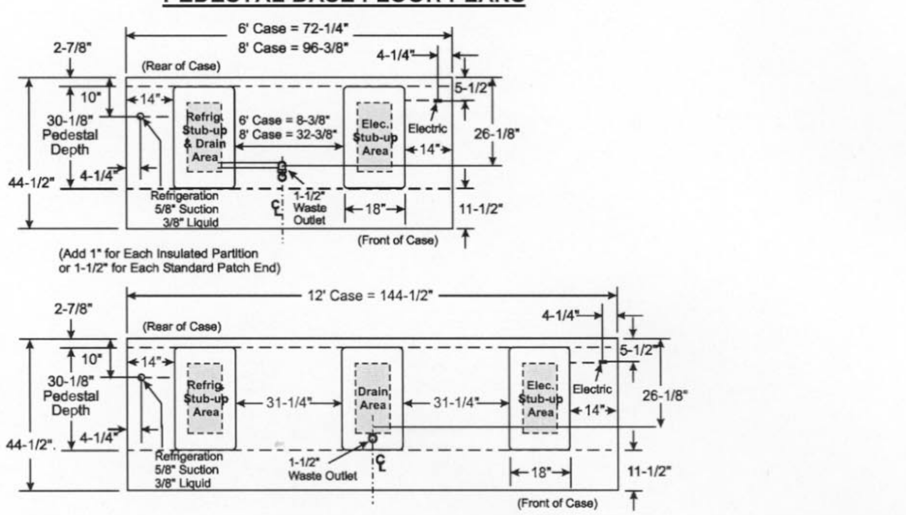

## TLM PEDESTAL BASE CROSS SECTION




## TLF PEDESTAL BASE CROSS SECTION




## PEDESTAL BASE FLOOR PLANS



## Pre-Installation Check List

**WARNING**

**These cases are very heavy and require two or more people to unload, move, position and/or install them. Improper handling of these cases could result in personal injury.**

**NOTE:**

**Cases with legs or pedestals are shipped to stores on skids under the base frame. Cases should be unloaded and moved by one of the conventional methods**

All cases containing glass MUST be stored and installed on level surfaces to avoid possible product damage and/or glass breakage.

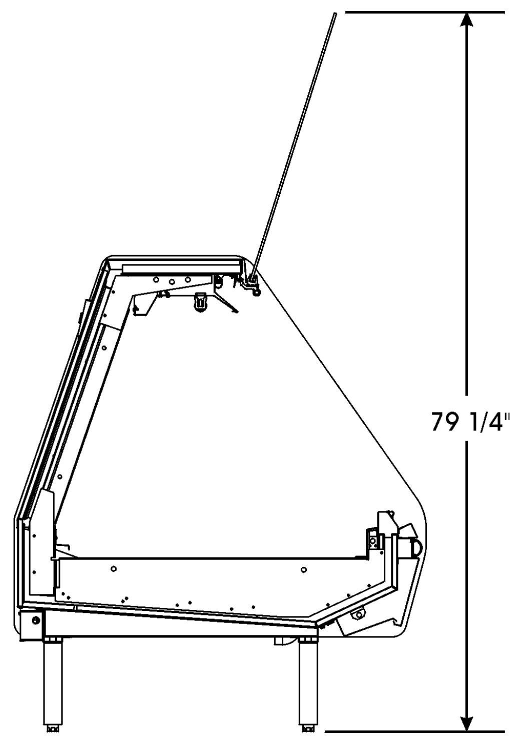
1. Check for hidden damage while unloading and unpacking of the case.
2. Check the “shipped loose” parts for any items; such as legs, pedestals, shelves, nuts and bolts, caulking, access doors, etc.
3. Check the equipment - remove the screws used to hold down the deck pans during shipping. Remove the pans and check the following, if applicable:
4. Remove all packing material.
5. Check all flare nut connections for tightness.
6. Check all fan bracket bolts for tightness.
7. Check all electrical plug-in connections for positive seal.
8. Make sure the expansion valve feeler bulb is securely attached to the suction line.
9. All field wiring and plumbing MUST conform to national, state, and local codes.
10. Do not remove plugs (from flare nuts) or caps (from threaded connections) until the unit is ready for final hook-up. All coils are pressurized and have a Schrader Valve access fitting. If pressure has been lost, check for leaks.

# INSTALLATION PROCEDURES

**WARNING**

**The raised front glass projects in front of the case and could cause personal injury to workers, operators and/or customers.**

- **Do not remove orange warning tags from front edge of lift glass.**
- **Do not leave lift glass raised and unattended.**
- **Know where the front edge of the raised glass is when working near it.**




This case is designed so the front glass can be raised for cleaning and merchandising only. It is recommended that any cleaning or merchandising be done when the store is closed. If this is not possible, it should be done at a time when customer traffic is low.

The raised glass should not be left unattended and should be lowered whenever leaving the case.

The glass front is marked with orange warning tags to make it noticeable when in the raised position. **Do not remove the orange tags.**

## Carpentry Procedures

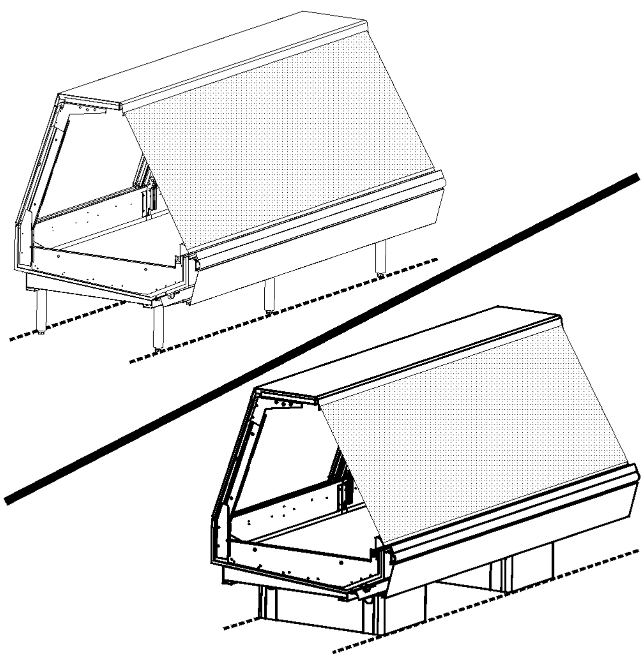
### Case Line-Up

Before starting the case line-up, review the store layout floorplans and survey the areas where case line-ups are going to be installed.

**WARNING**

- **These cases are very heavy and require two or more people to move, position and/or install them.**
- **Do not walk on the tops of these cases. Tops of cases are not designed to support the weight of a human being.**

**Improper handling of these cases could result in personal injury.**



1. Snap chalk lines where the front and rear of the case legs or pedestals are to be located for the entire line-up.

**NOTE**

**Front and rear edges of legs or pedestals should always be used to line-up cases. Cases with legs have built-in leveling adjustment capabilities. Cases with pedestals use 6" shims to make leveling adjustments.**

2. Cases are shipped on skids. Using a proper lifting devise, lift case off skid and position case where it is to be installed. While the case is properly supported, install legs into threaded holes in base. Make sure all legs are completely threaded into the base to properly secure them. Carefully lower case until it is supported by the legs or pedestals. Thread out bottom leg insert, up to 1 1/2", to level the case.

   If case has pedestals, locate highest point on chalk lines as a reference for determining the number of shims to be placed under case pedestals. Position first case at the highest point on the chalk lines and shim case pedestals as required.

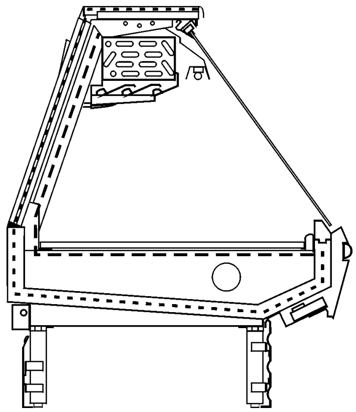
   Check leveling across the top of the case and on top of the front cladding.

**CAUTION**

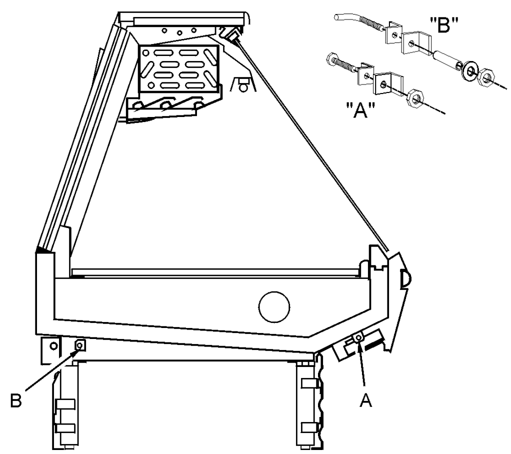
**If the base of this case is not sitting evenly on the floor, the case could warp when loaded and possibly break the lift glass.**

**NOTE**

**A foam gasket is factory installed on one end of the case. This gasket fits into a groove on the adjoining case when cases are pulled together. Do not depend on the foam gasket alone to make a good seal!**



3. Apply two heavy beads of caulking compound from the Filler Kit to the end of case at dotted (. . .) and dashed (- - -) lines. Proper caulking provides good case refrigeration and sanitation.




4. Push cases tightly together making sure the pull-ups are aligned.
5. Adjust legs or add shims under the end pedestals, as required. Check leveling at top of the case and on top of the front cladding.

## CAUTION

**Do not drill or use other holes through the case end for pull-ups. This may deform the case end and could cause joint leaks and/or poor refrigeration.**

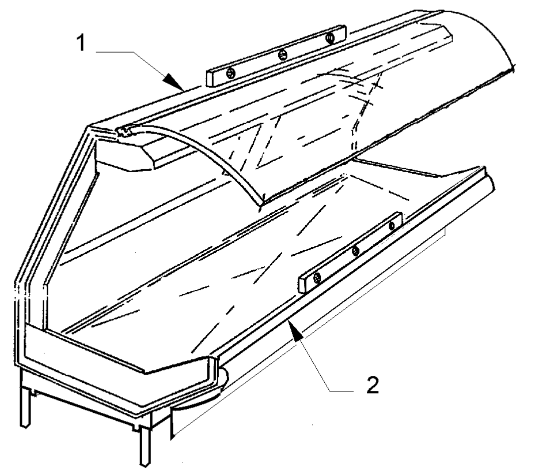
6. Position pull-up bolts and mounting hardware at pull-up locations (A and B). Do not tighten any pull-up hardware until all of it has been installed. Tighten all pull-up hardware equally starting at point A and finishing at point B. **Do not overtighten.**

## Lift Front Glass Leveling Instructions

**Accurate leveling is critical for the proper operation of the lift glass on this case.**

In some instances, setting the case on an apparently level floor can cause the lift glass to fit improperly. If there is any twist in the body, it could cause the lift glass not to fit or work properly.

The emphasis when leveling this case must be on making sure the lift glass works and seals properly.




The case should be leveled across the top (1), close to the hinge, and on the top of the front cladding (2). A 4 foot level is recommended, and **both places should be level!** This will enable the lift glass to fit and work properly.

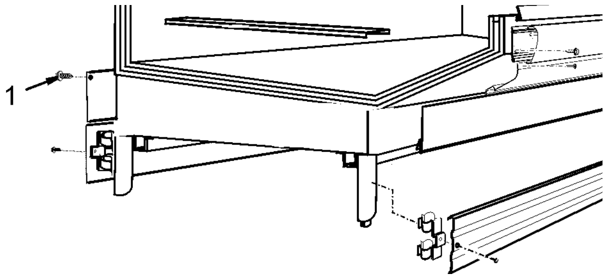
If the lift glass still doesn't close or line-up properly, adjust the legs at the case corners or shimm the pedestals. Leg adjustment or shimming will ensure proper operation and alignment of the lift glass.

The handle on the lift glass must rest evenly on the front cladding. Proper lift glass sealing is essential for good product refrigeration.

## NOTE

**Do not anchor the base to the floor or enclose the case until the lift glass is fitting properly and working correctly.**

## Rear Rail Cover & Close-off Installation (Cases with Pipe Legs)



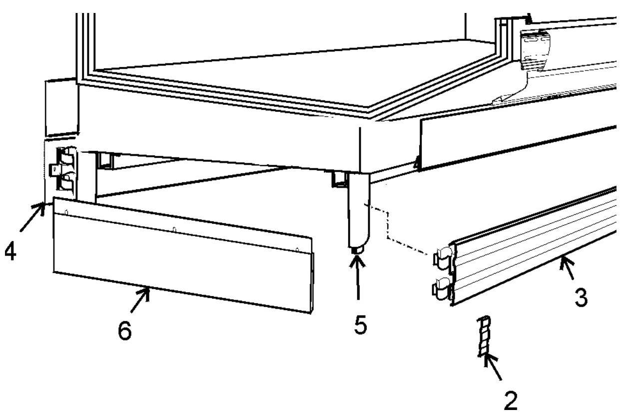

Position rear rail cover (1) over rear raceway opening and secure with screws in every hole.

### Bottom and End Close-off Installation

Kickplate, optional rear bottom and end close-offs have spring clips on their back sides that secure to the pipe legs.

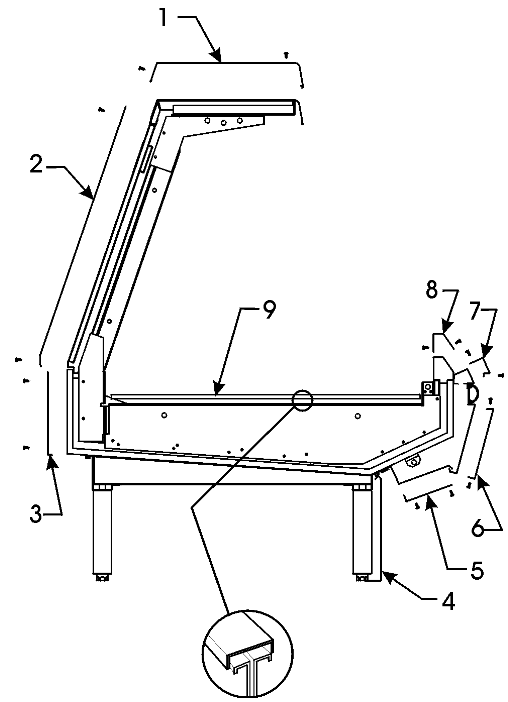
**NOTE**

**Optional rear bottom close-offs do not require joint trim.**




1. Before installing kickplates on a multiple case lineup, snap a joint trim (2) over the top and bottom of one of each kickplate (3).
2. Lineup each kickplate (3) and/or optional rear bottom close-off (4) and push to secure the spring clips to the legs (5).
3. Slide joint rrims (2) over the case-to-case joints.
4. Position end close-offs (6) over the end of the kickplate (3) and/or optional rear bottom close-off (4) and push until the spring clips secure to the legs.

## Trim Installation

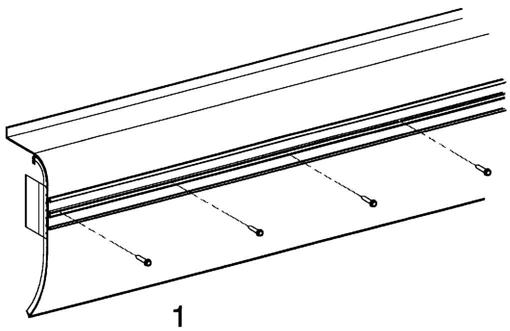



The joint trim and mounting hardware are shipped loose. Trim includes top joint trim (1), rear upper joint trim (2), rear lower joint trim (3), front kickplate joint trim (4), front lower cladding joint trim (5) and front upper cladding joint trim (6), color band backer (7), glass stop joint trim (8) and horizontal joint trim (9).

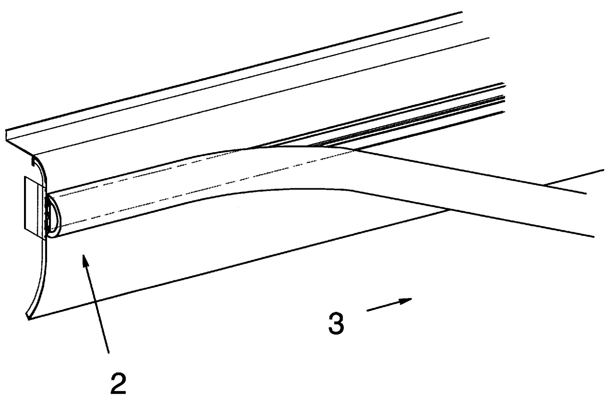
Horizontal joint trim covers gaps between the cases. The trim is glued onto the shipping cardboard. If trim has a notched side, apply trim with notched side towards front of case, after running beads of caulking on the edges of the cases. Sheet metal screws can be used for additional securing.

Patch end trim is shipped factory installed. If field installation is required, be sure the patch end is pulled up enough to fit snuggly against the sealing tubing on the inside of the case. The patch end must seal tightly against the lift glass wiper to ensure proper operating temperatures.

### Optional 2” Bumper Installation




1. Install bumper retaining track on cladding with screws, if required, using same alignment as old bumper track.




2. Cut vinyl bumper slightly longer than overall length of case line-up. Starting at either end of the case, snap end of bumper onto the bumper retainer track.
3. Curve the bumper back as illustrated. This will open the bumper and allow it to snap onto the retainer track. Working in one direction, “roll” the bumper onto the retainer track. Just before reaching the opposite end, final cut the bumper (approx. 1/8”) longer than the bumper retainer. The additional 1/8” length will allow for normal shrinkage from case cooling.

**NOTE**

**Bumper unevenness may be remedied by striking with a mallet and straight board along the length of the installation.**

**See “General (UL/NSF) I&S Manual” for Plumbing Procedures.**

## Refrigeration Procedures

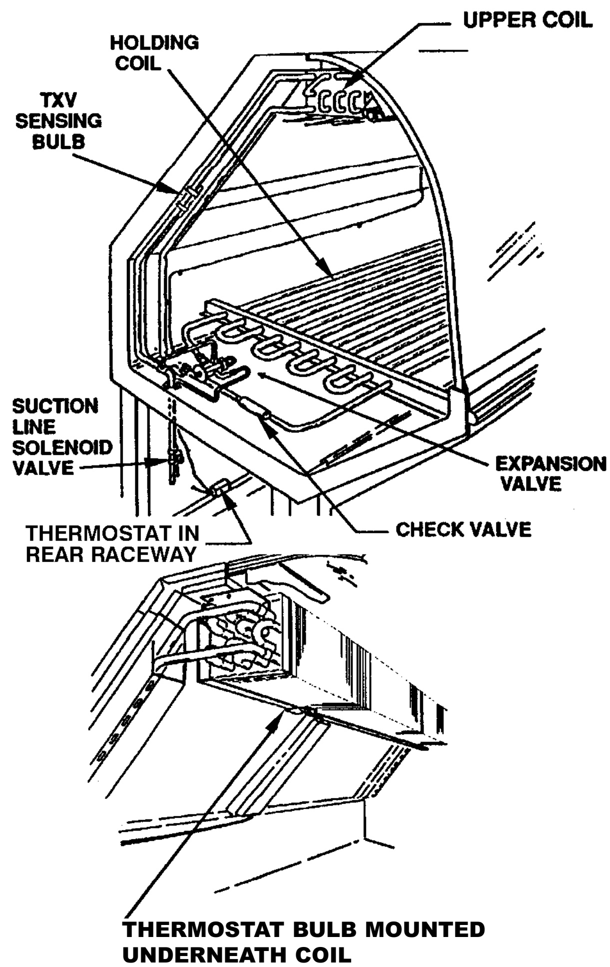
**Refrigeration system and superheat instructions can be found in the “General (UL/NSF) I&S Manual”. Service case temperature control information is listed below.**

### Temperature Control

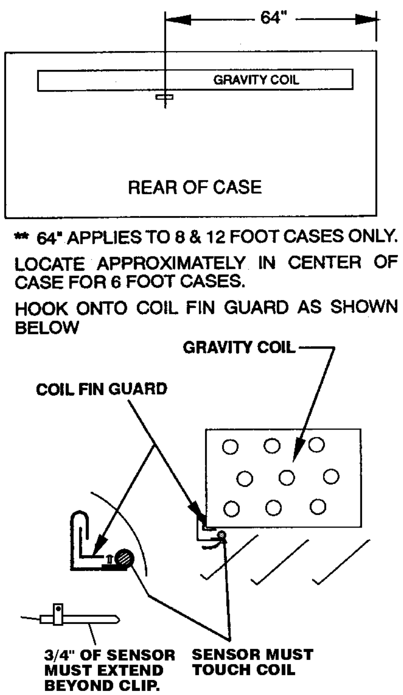
The temperature of each case is controlled with a thermostat and suction line solenoid. One thermostat and one solenoid are required for up to three cases.

The TLM, TLF and TLD cases use an electronic thermostat for improved temperature control.

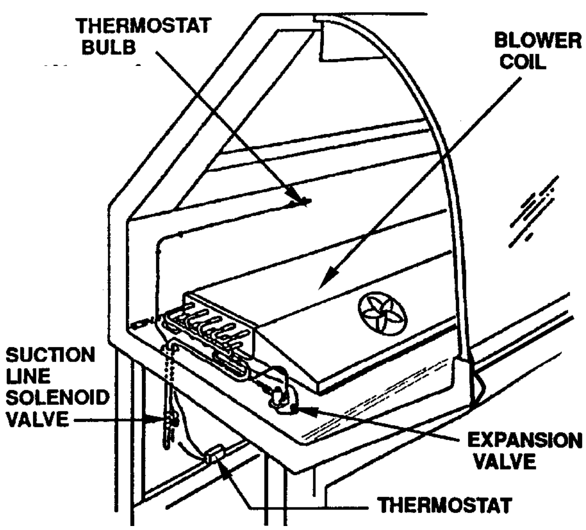
**Typical Service Case with Gravity Coil**



**THERMOSTAT BULB PLACEMENT**



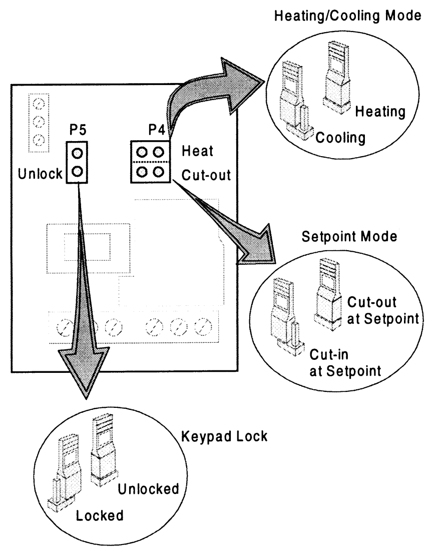

### Typical Service Case with Blower Coil



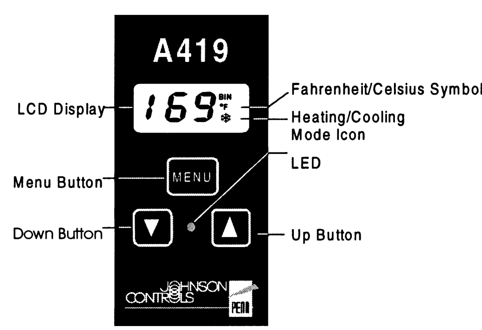

In addition to the thermostat and suction solenoid, a suction stop EPR valve is required in the suction line. The EPR valve acts as a low pressure limit to aid in the overall temperature control. See "Connecting the Refrigeration Piping and Components" on page 27 of this manual.

### Setting the Electronic Thermostat

1. Remove the four screws and cover from the electronic thermostat.
2. Connect sensor wires to the common (COM) and sensor (SEN) terminals of the terminal strip located at the top left of the printed circuit board. The sensor leads are interchangeble.




3. Set the Heating/Cooling jumper blocks to the "COOL" position.
4. Set the Cut-in at Setpoint/Cut-out at Setpoint jumper blocks to the "Cut-out at Setpoint" position.
5. Set the Keypad Locked/Unlocked jumper blocks to the "Unlocked" position.
6. Replace the electronic thermostat cover and secure with four screws.




7. To adjust the setpoint:
   a. Push the Menu Button. "SP" will flash on the LCD display.
   b. Push the Menu Button one more time and a setpoint temperature will be displayed.

c. Push the Up or Down Button until the desired setpoint is displayed. (TLM = 22°F, TLF = 33°F or TLD = 22°F)
d. Push the Menu Button.

8. To adjust the differential:

a. Push the Menu Button. "SP" will flash on the LCD display.
b. Push the Down Button until "DIF" is shown on the LCD display.
c. Push the Menu Button one more time and a differential number will be displayed.
d. Push the Up or Down Button until the desired differential setting is displayed. (TLM = 4°F, TLF = 1°F or TLD = 4°F)
d. Push the Menu Button.

With the cooling mode selected, the differential is ABOVE the setpoint. The relay will be energized and the LED indicator will illuminate when the temperature reaches the differential setting. When the temperature drops to the setpoint, the relay and LED indicator will de-energize and refrigeration will stop.

The settings above are specific to TYLER service cases. Other applications will require different setpoints and differentials.

## Electrical Procedures

### Electrical Considerations

**CAUTION**

**Make sure all electrical connections at components and terminal blocks are tight. This prevents burning of electrical terminals and/or premature component failure.**

**NOTE**

**The ballast box is located at the lower left rear corner of the case. It houses ballasts and terminal blocks.**

### Case Fan Circuit (TLD only)

This circuit is to be supplied by an uninterrupted, protected 120V circuit. The case fan circuit is not cycled on this case.

### Ambient Fan Circuit

All TL cases have an ambient fan circuit. This circuit is supplied by an uninterrupted, protected 120V circuit. The ambient fan circuit is not cycled.

### Fluorescent Lamp Circuit

TL case lighting is supplied by T-8 electronic ballast lights. It is controlled by a light switch in each case. The standard lighting is 1-row of horizontal canopy lights.

### Anti-Sweat Circuit

All anti-sweat heaters are wired directly to the main power supply so they can operate at all times.

## Defrost Information

**See "General (UL/NSF) I&S Manual" for operational descriptions for each type of defrosy control.**

### Defrost Control Chart

**TLM/TLF Defrost Option Settings**

| Defrost Type | Defrosts Per Day | Defrost Duration (Min) | Term. Temp. |
|---|---|---|---|
| Off Time | 2 | 54 | ----- |

**TLD Defrost Option Settings**

| Defrost Type | Defrosts Per Day | Defrost Duration (Min) | Term. Temp. |
|---|---|---|---|
| Off Time | 4 | 34 | ----- |

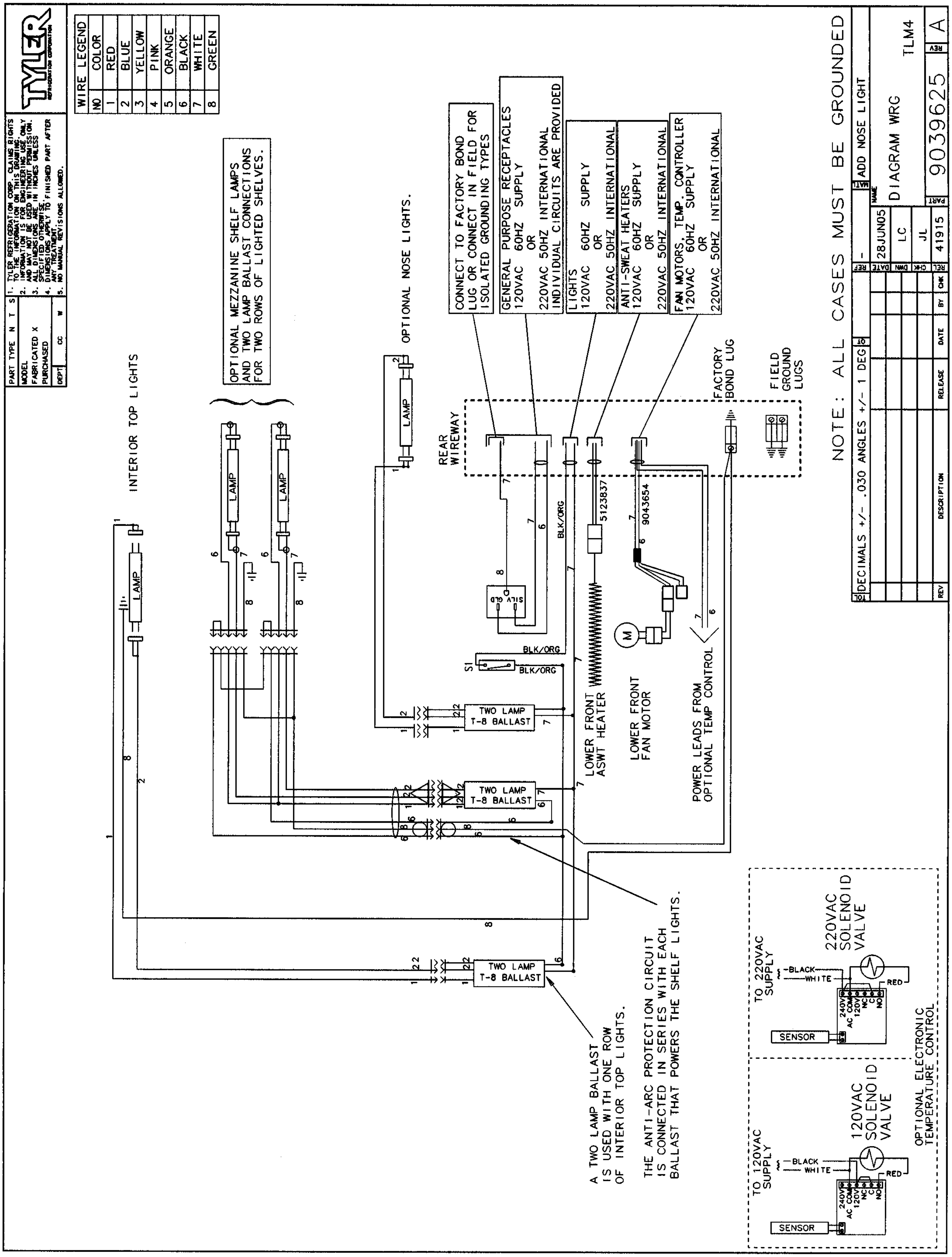
Thermostat and sensor locations are shown on pages 11 and 12 of this manual.

## WIRING DIAGRAMS

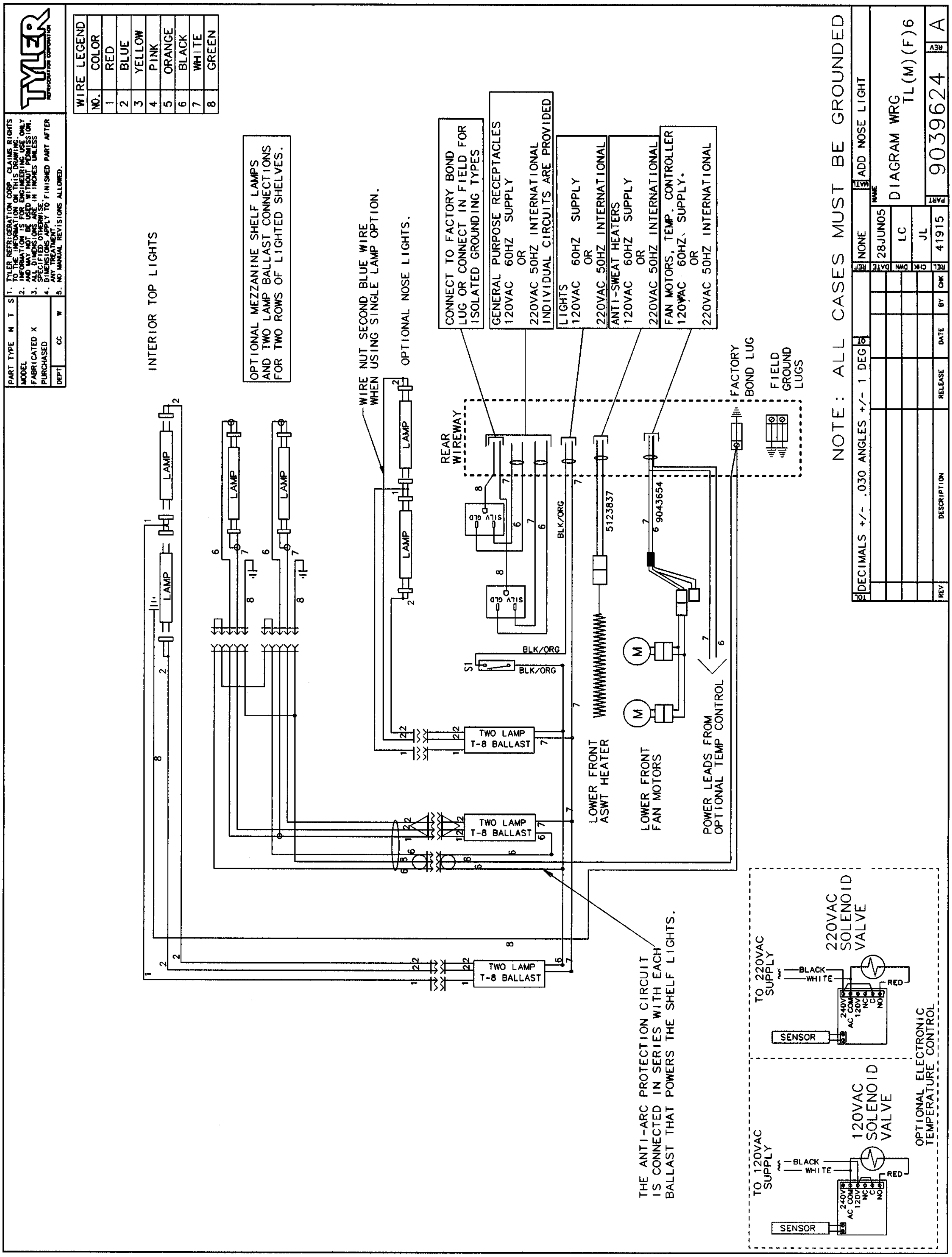
**ELECTRICIAN NOTE - OVERCURRENT PROTECTION**

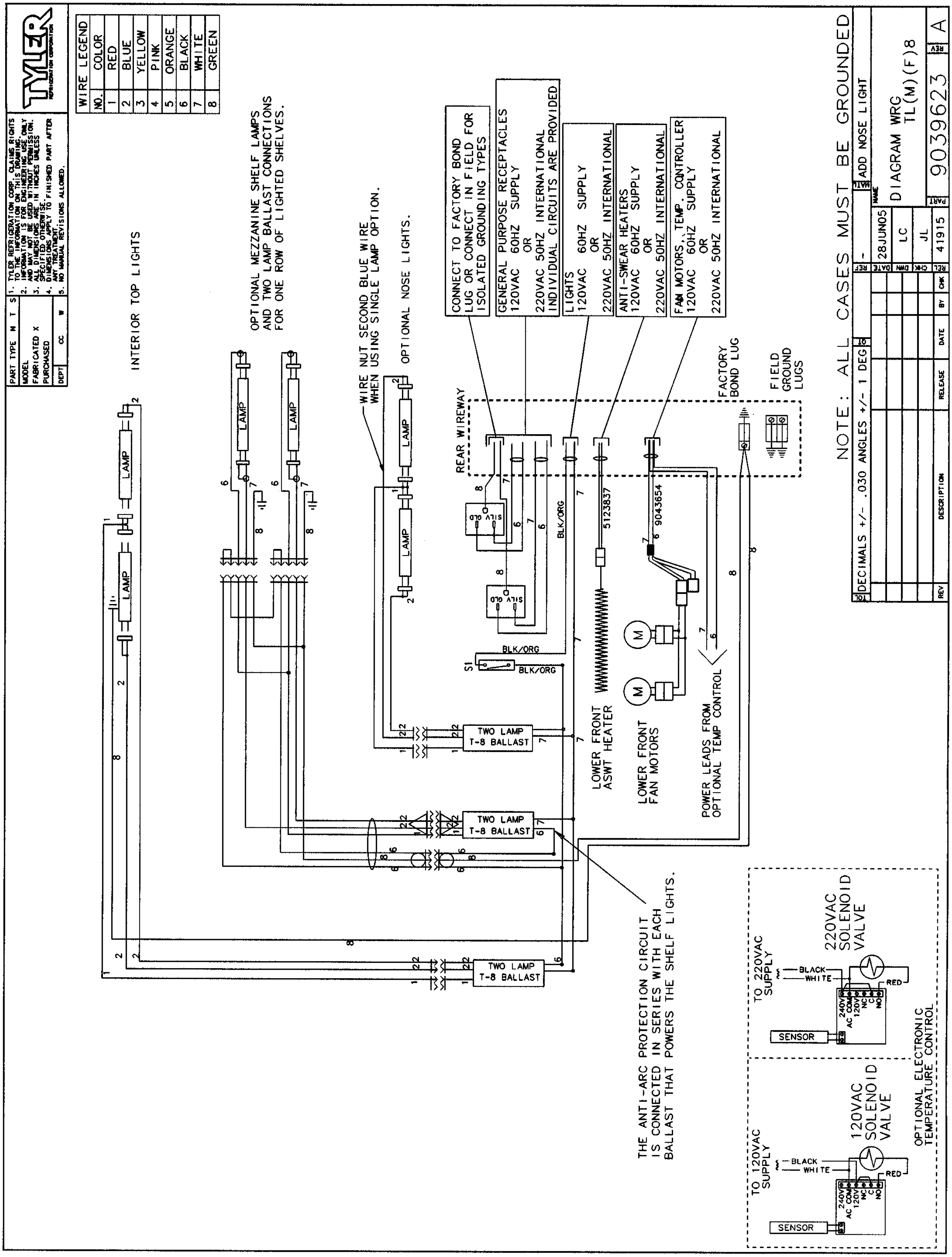
**120V circuits should be protected by 15 or 20 Amp devices per the requirements noted on the cabinet nameplate or the National Electrical Code, Canadian Electrical Code - Part 1, Section 28. 208V defrost circuits employ No. 12 AWG field wire leads for field connections. On remote cases intended for end to end line-ups, bonding for ground may rely upon the pull-up bolts.**

The wiring diagrams on pages 14 thru 21 will cover all TLM, TLF and TLD case circuits.

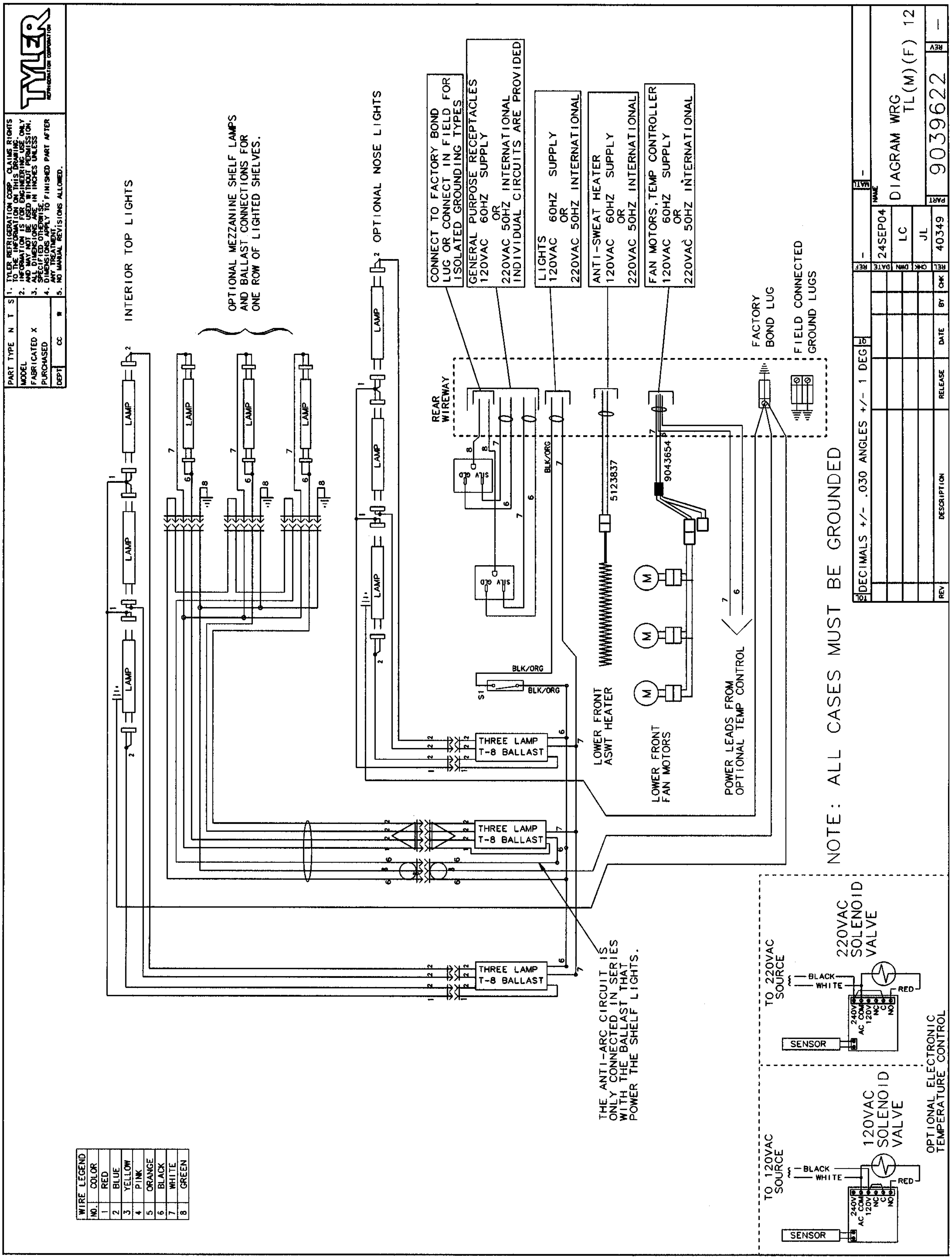


WIRE LEGEND
NO COLOR
1 RED
2 BLUE
3 YELLOW
4 PINK
5 ORANGE
6 BLACK
7 WHITE
8 GREEN
TYLER
OPTIONAL MEZZANINE SHELF LAMPS AND TWO LAMP BALLAST CONNECTIONS FOR TWO ROWS OF LIGHTED SHELVES.
OPTIONAL NOSE LIGHTS.
INTERIOR TOP LIGHTS
CONNECT TO FACTORY BOND LUG OR CONNECT IN FIELD FOR ISOLATED GROUNDING TYPES
GENERAL PURPOSE RECEPTACLES 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL INDIVIDUAL CIRCUITS ARE PROVIDED
LIGHTS 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
ANTI-SWEAT HEATERS 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
FAN MOTORS, TEMP. CONTROLLER 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
FACTORY BOND LUG
FIELD GROUND LUGS
REAR WIREWAY
LAMP
TWO LAMP T-8 BALLAST
LOWER FRONT ASWT HEATER
LOWER FRONT FAN MOTOR
POWER LEADS FROM OPTIONAL TEMP CONTROL
BLK/ORG
5123837
9043654
A TWO LAMP BALLAST IS USED WITH ONE ROW OF INTERIOR TOP LIGHTS.
THE ANTI-ARC PROTECTION CIRCUIT IS CONNECTED IN SERIES WITH EACH BALLAST THAT POWERS THE SHELF LIGHTS.
TO 220VAC SUPPLY
220VAC SOLENOID VALVE
TO 120VAC SUPPLY
120VAC SOLENOID VALVE
BLACK
WHITE
RED
SENSOR
OPTIONAL ELECTRONIC TEMPERATURE CONTROL
NOTE: ALL CASES MUST BE GROUNDED
DECIMALS +/- .030 ANGLES +/- 1 DEG
ADD NOSE LIGHT
28JUN05
DIAGRAM WRG
TLM4
9039625
A
41915


TYLER
WIRE LEGEND
NO. COLOR
1 RED
2 BLUE
3 YELLOW
4 PINK
5 ORANGE
6 BLACK
7 WHITE
8 GREEN
INTERIOR TOP LIGHTS
OPTIONAL MEZZANINE SHELF LAMPS AND TWO LAMP BALLAST CONNECTIONS FOR TWO ROWS OF LIGHTED SHELVES.
WIRE NUT SECOND BLUE WIRE WHEN USING SINGLE LAMP OPTION.
OPTIONAL NOSE LIGHTS.
CONNECT TO FACTORY BOND LUG OR CONNECT IN FIELD FOR ISOLATED GROUNDING TYPES
GENERAL PURPOSE RECEPTACLES 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL INDIVIDUAL CIRCUITS ARE PROVIDED
LIGHTS 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
ANTI-SWEAT HEATERS 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
FAN MOTORS, TEMP. CONTROLLER 120VAC 60HZ. SUPPLY. OR 220VAC 50HZ INTERNATIONAL
REAR WIREWAY
FACTORY BOND LUG
FIELD GROUND LUGS
LAMP
TWO LAMP T-8 BALLAST
LOWER FRONT ASWT HEATER
LOWER FRONT FAN MOTORS
POWER LEADS FROM OPTIONAL TEMP CONTROL
THE ANTI-ARC PROTECTION CIRCUIT IS CONNECTED IN SERIES WITH EACH BALLAST THAT POWERS THE SHELF LIGHTS.
TO 220VAC SUPPLY
220VAC SOLENOID VALVE
TO 120VAC SUPPLY
120VAC SOLENOID VALVE
SENSOR
OPTIONAL ELECTRONIC TEMPERATURE CONTROL
NOTE: ALL CASES MUST BE GROUNDED
DECIMALS +/- .030 ANGLES +/- 1 DEG
ADD NOSE LIGHT
DIAGRAM WRG TL(M)(F)6
9039624 A
28JUN05

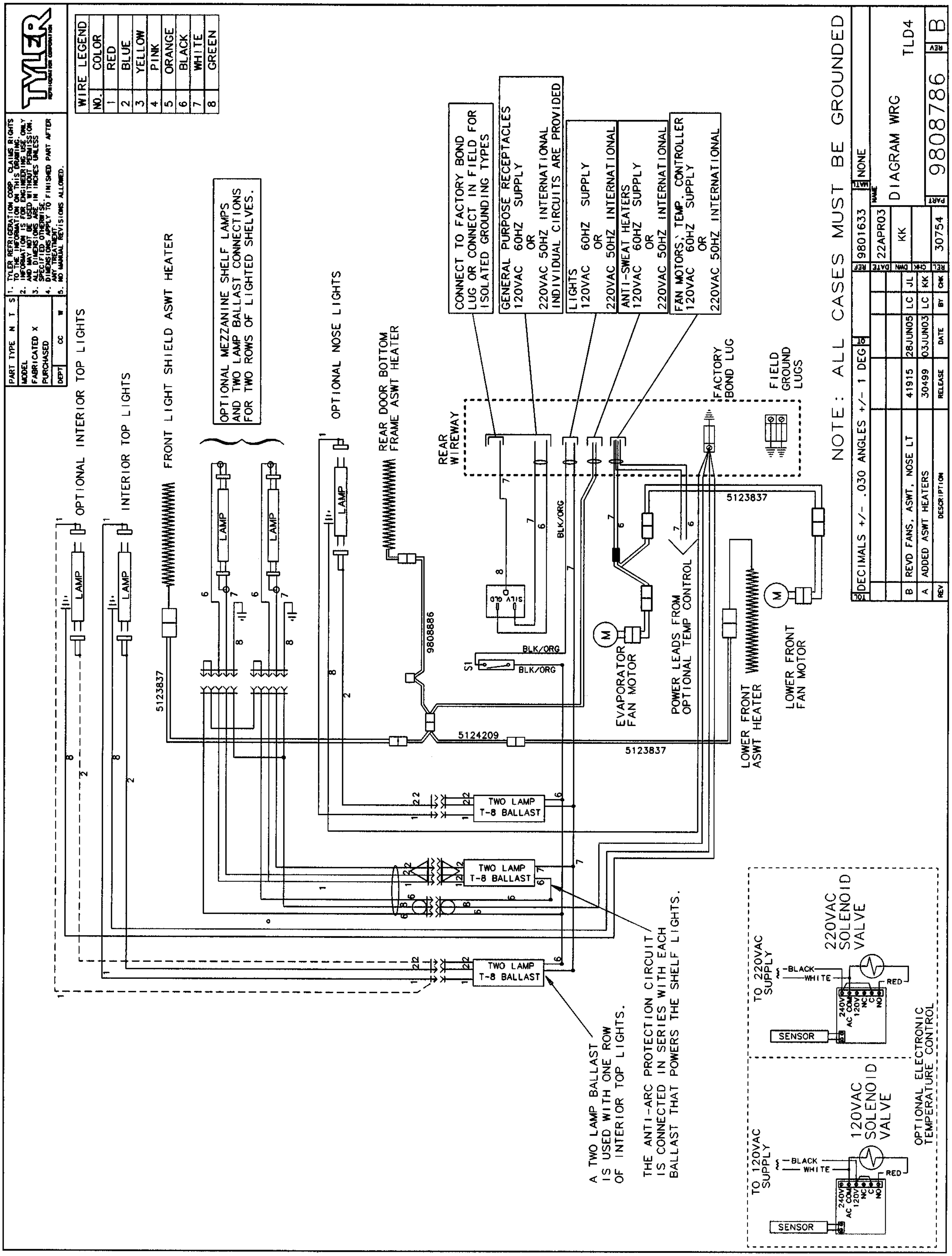


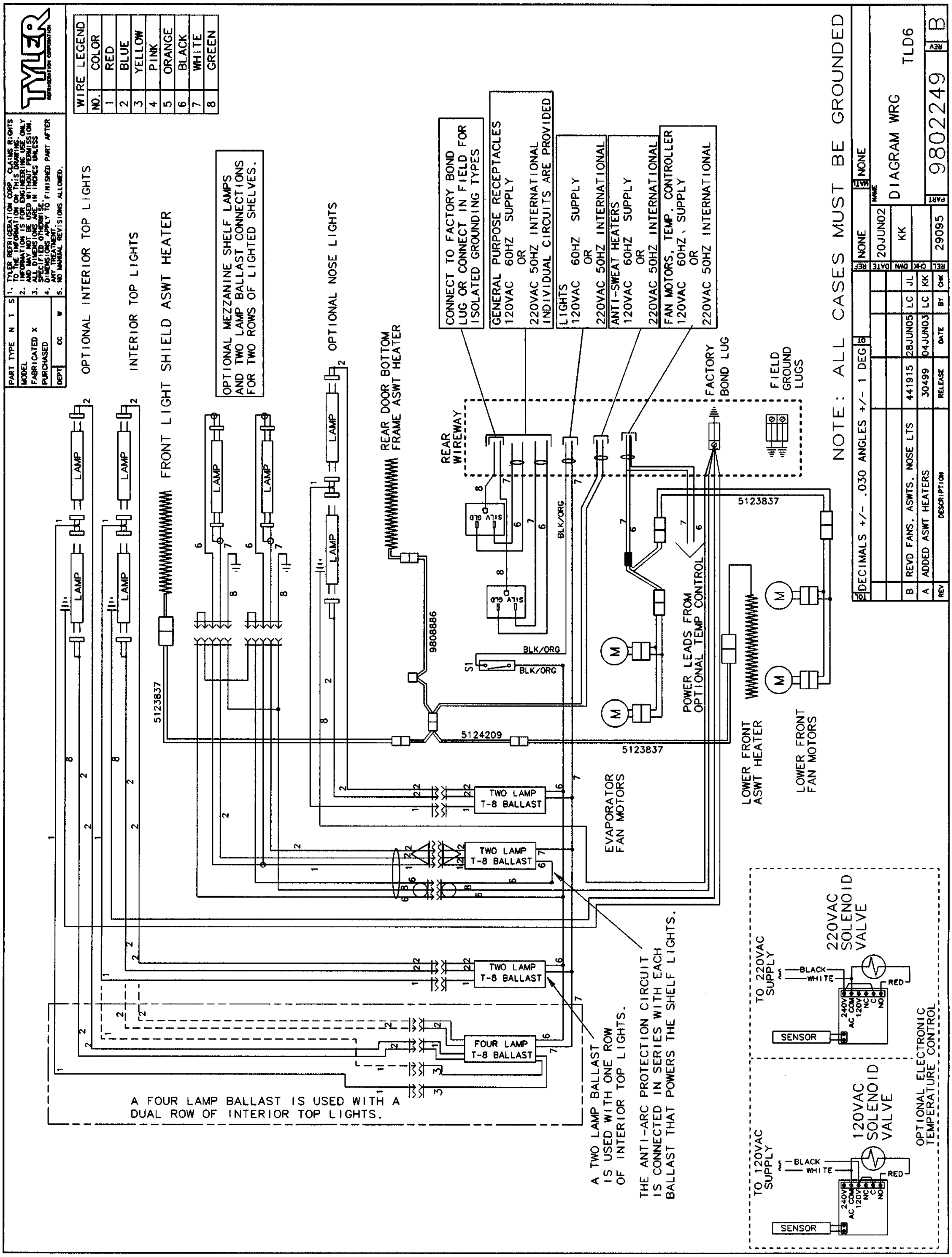
NOTE: ALL CASES MUST BE GROUNDED
WIRE LEGEND
NO. COLOR
1 RED
2 BLUE
3 YELLOW
4 PINK
5 ORANGE
6 BLACK
7 WHITE
8 GREEN
INTERIOR TOP LIGHTS
OPTIONAL MEZZANINE SHELF LAMPS AND TWO LAMP BALLAST CONNECTIONS FOR ONE ROW OF LIGHTED SHELVES.
WIRE NUT SECOND BLUE WIRE WHEN USING SINGLE LAMP OPTION.
OPTIONAL NOSE LIGHTS.
CONNECT TO FACTORY BOND LUG OR CONNECT IN FIELD FOR ISOLATED GROUNDING TYPES
GENERAL PURPOSE RECEPTACLES 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL INDIVIDUAL CIRCUITS ARE PROVIDED
LIGHTS 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
ANTI-SWEAR HEATERS 120VAC SUPPLY OR 220VAC 50HZ INTERNATIONAL
FAN MOTORS., TEMP. CONTROLLER 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
REAR WIREWAY
FACTORY BOND LUG
FIELD GROUND LUGS
LAMP
TWO LAMP T-8 BALLAST
S1
BLK/ORG
5123837
9043654
LOWER FRONT ASWT HEATER
LOWER FRONT FAN MOTORS
POWER LEADS FROM OPTIONAL TEMP CONTROL
THE ANTI-ARC PROTECTION CIRCUIT IS CONNECTED IN SERIES WITH EACH BALLAST THAT POWERS THE SHELF LIGHTS.
TO 220VAC SUPPLY
220VAC SOLENOID VALVE
TO 120VAC SUPPLY
120VAC SOLENOID VALVE
BLACK
WHITE
RED
SENSOR
OPTIONAL ELECTRONIC TEMPERATURE CONTROL
DECIMALS +/- .030 ANGLES +/- 1 DEG
ADD NOSE LIGHT
28JUN05
LC
JL
41915
DIAGRAM WRG TL(M)(F)8
9039623
A

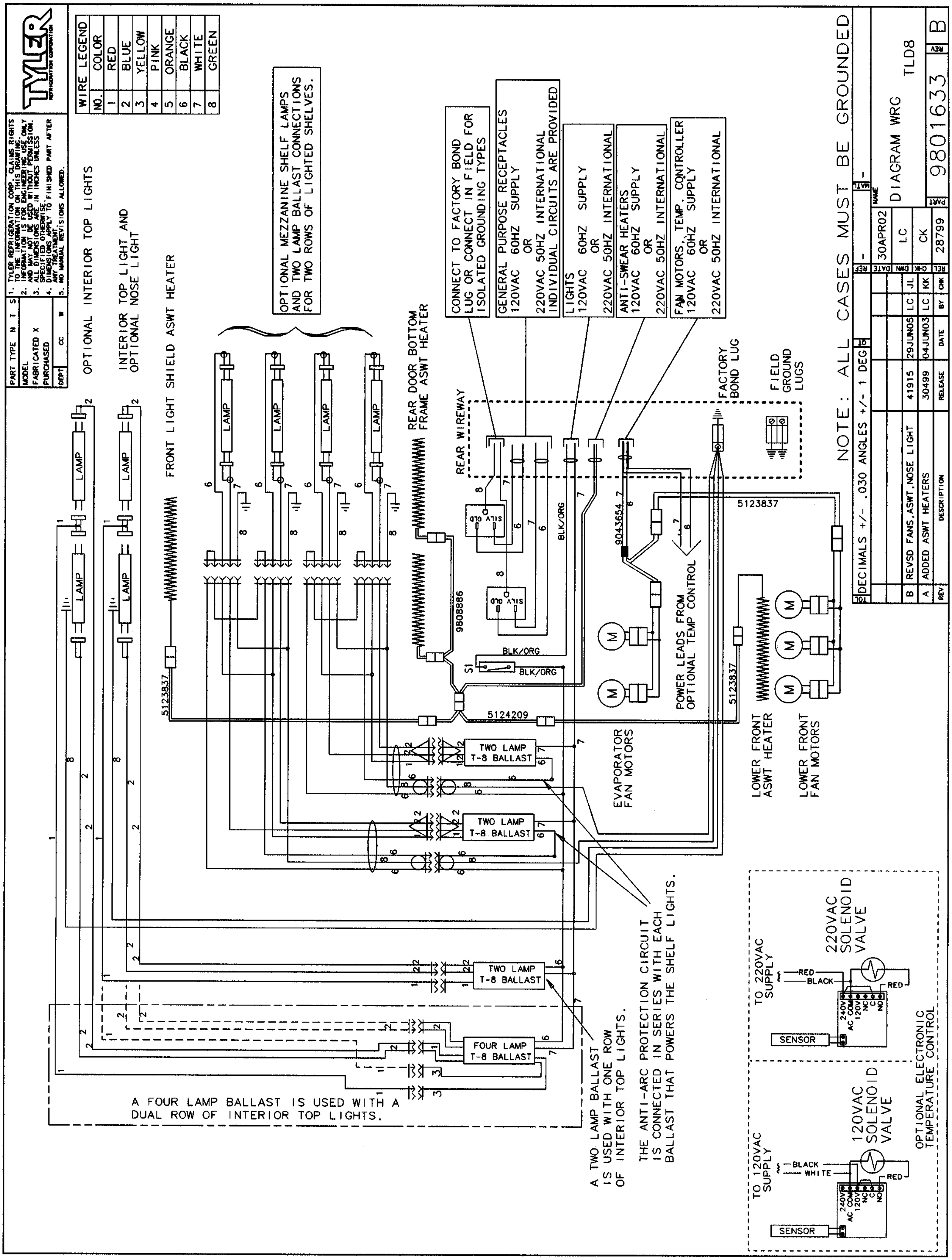


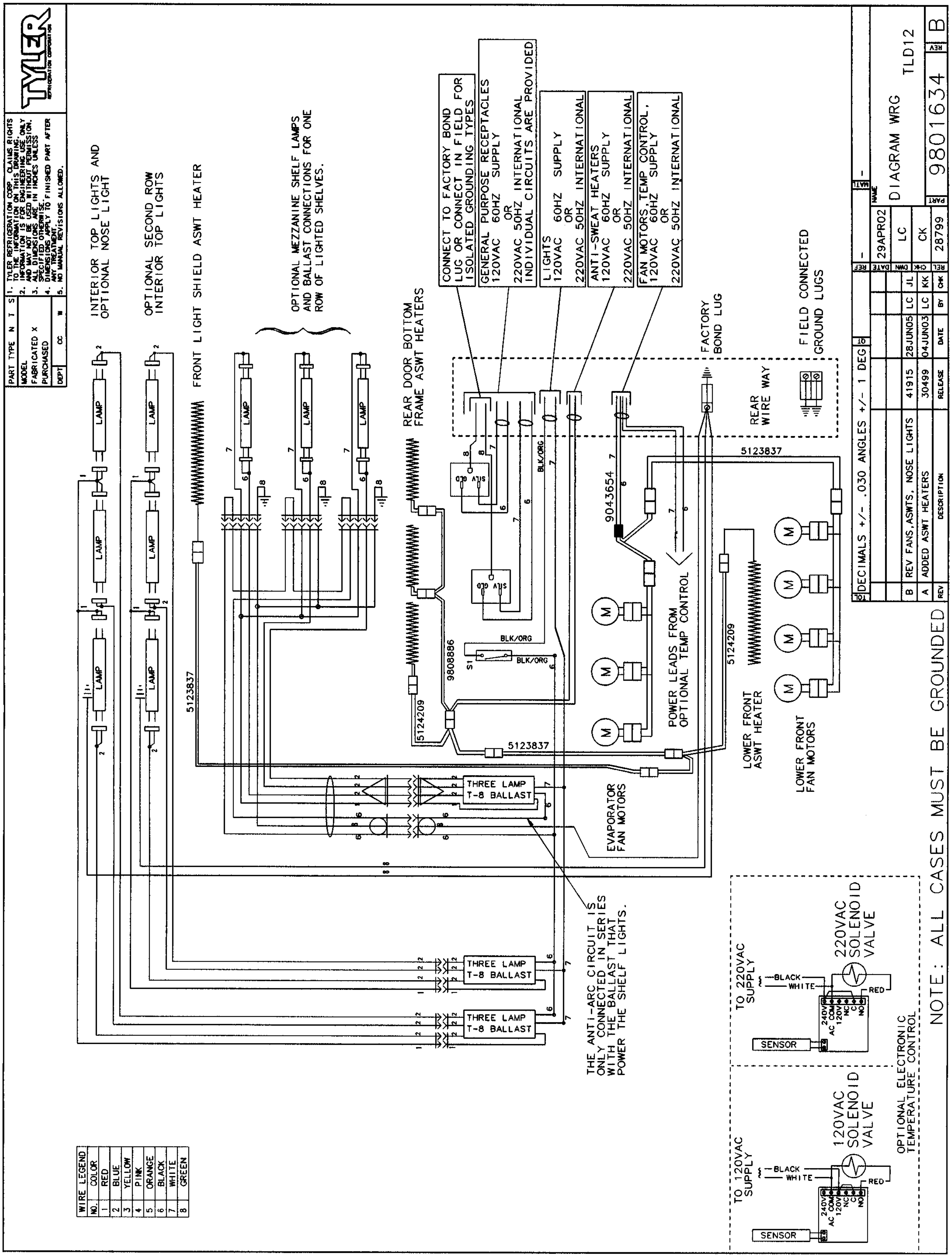
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INTERIOR TOP LIGHTS
OPTIONAL MEZZANINE SHELF LAMPS AND BALLAST CONNECTIONS FOR ONE ROW OF LIGHTED SHELVES.
OPTIONAL NOSE LIGHTS
CONNECT TO FACTORY BOND LUG OR CONNECT IN FIELD FOR ISOLATED GROUNDING TYPES
GENERAL PURPOSE RECEPTACLES 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL INDIVIDUAL CIRCUITS ARE PROVIDED
LIGHTS 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
ANTI-SWEAT HEATER 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
FAN MOTORS, TEMP CONTROLLER 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
REAR WIREWAY
FACTORY BOND LUG
FIELD CONNECTED GROUND LUGS
LAMP
THREE LAMP T-8 BALLAST
BLK/ORG
S1
5123837
9043654
LOWER FRONT ASWT HEATER
LOWER FRONT FAN MOTORS
POWER LEADS FROM OPTIONAL TEMP CONTROL
THE ANTI-ARC CIRCUIT IS ONLY CONNECTED IN SERIES WITH THE BALLAST THAT POWER THE SHELF LIGHTS.
NOTE: ALL CASES MUST BE GROUNDED
TO 220VAC SOURCE
220VAC SOLENOID VALVE
TO 120VAC SOURCE
120VAC SOLENOID VALVE
BLACK
WHITE
RED
SENSOR
OPTIONAL ELECTRONIC TEMPERATURE CONTROL
WIRE LEGEND
NO. COLOR
1 RED
2 BLUE
3 YELLOW
4 PINK
5 ORANGE
6 BLACK
7 WHITE
8 GREEN
DECIMALS +/- .030 ANGLES +/- 1 DEG
24SEP04
LC
JL
40349
DIAGRAM WRG TL(M)(F) 12
9039622

# TLD Domestic & Export (50 Hz) Case Circuits (4', 6', 8' and 12' Cases)




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5. NO MANUAL REVISIONS ALLOWED.
WIRE LEGEND
NO. COLOR
1 RED
2 BLUE
3 YELLOW
4 PINK
5 ORANGE
6 BLACK
7 WHITE
8 GREEN
OPTIONAL INTERIOR TOP LIGHTS
INTERIOR TOP LIGHTS
FRONT LIGHT SHIELD ASWT HEATER
OPTIONAL MEZZANINE SHELF LAMPS AND TWO LAMP BALLAST CONNECTIONS FOR TWO ROWS OF LIGHTED SHELVES.
OPTIONAL NOSE LIGHTS
REAR DOOR BOTTOM FRAME ASWT HEATER
LAMP
CONNECT TO FACTORY BOND LUG OR CONNECT IN FIELD FOR ISOLATED GROUNDING TYPES
GENERAL PURPOSE RECEPTACLES 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL INDIVIDUAL CIRCUITS ARE PROVIDED
LIGHTS 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
ANTI-SWEAT HEATERS 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
FAN MOTORS, TEMP. CONTROLLER 120VAC 60HZ, SUPPLY OR 220VAC 50HZ INTERNATIONAL
REAR WIREWAY
FACTORY BOND LUG
FIELD GROUND LUGS
NOTE: ALL CASES MUST BE GROUNDED
9808886
5123837
5124209
S1
BLK/ORG
POWER LEADS FROM OPTIONAL TEMP CONTROL
EVAPORATOR FAN MOTORS
LOWER FRONT ASWT HEATER
LOWER FRONT FAN MOTORS
TWO LAMP T-8 BALLAST
FOUR LAMP T-8 BALLAST
A FOUR LAMP BALLAST IS USED WITH A DUAL ROW OF INTERIOR TOP LIGHTS.
A TWO LAMP BALLAST IS USED WITH ONE ROW OF INTERIOR TOP LIGHTS.
THE ANTI-ARC PROTECTION CIRCUIT IS CONNECTED IN SERIES WITH EACH BALLAST THAT POWERS THE SHELF LIGHTS.
TO 220VAC SUPPLY
220VAC SOLENOID VALVE
TO 120VAC SUPPLY
120VAC SOLENOID VALVE
BLACK
WHITE
RED
SENSOR
OPTIONAL ELECTRONIC TEMPERATURE CONTROL
DECIMALS +/- .030 ANGLES +/- 1 DEG
B REVD FANS, ASWTS, NOSE LTS 441915 28JUN05 LC JL
A ADDED ASWT HEATERS 30499 04JUN03 LC KK
DIAGRAM WRG
TLD6
9802249
B
20JUN02
29095


TYLER
WIRE LEGEND
NO. COLOR
1 RED
2 BLUE
3 YELLOW
4 PINK
5 ORANGE
6 BLACK
7 WHITE
8 GREEN
OPTIONAL INTERIOR TOP LIGHTS
INTERIOR TOP LIGHT AND OPTIONAL NOSE LIGHT
FRONT LIGHT SHIELD ASWT HEATER
OPTIONAL MEZZANINE SHELF LAMPS AND TWO LAMP BALLAST CONNECTIONS FOR TWO ROWS OF LIGHTED SHELVES.
REAR DOOR BOTTOM FRAME ASWT HEATER
REAR WIREWAY
CONNECT TO FACTORY BOND LUG OR CONNECT IN FIELD FOR ISOLATED GROUNDING TYPES
GENERAL PURPOSE RECEPTACLES 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL INDIVIDUAL CIRCUITS ARE PROVIDED
LIGHTS 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
ANTI-SWEAR HEATERS 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
FAN MOTORS, TEMP. CONTROLLER 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
FACTORY BOND LUG
FIELD GROUND LUGS
LAMP
TWO LAMP T-8 BALLAST
FOUR LAMP T-8 BALLAST
EVAPORATOR FAN MOTORS
POWER LEADS FROM OPTIONAL TEMP CONTROL
LOWER FRONT ASWT HEATER
LOWER FRONT FAN MOTORS
5123837
5124209
9808886
9043654
BLK/ORG
S1
A FOUR LAMP BALLAST IS USED WITH A DUAL ROW OF INTERIOR TOP LIGHTS.
A TWO LAMP BALLAST IS USED WITH ONE ROW OF INTERIOR TOP LIGHTS.
THE ANTI-ARC PROTECTION CIRCUIT IS CONNECTED IN SERIES WITH EACH BALLAST THAT POWERS THE SHELF LIGHTS.
TO 220VAC SUPPLY
220VAC SOLENOID VALVE
TO 120VAC SUPPLY
120VAC SOLENOID VALVE
SENSOR
RED
BLACK
WHITE
OPTIONAL ELECTRONIC TEMPERATURE CONTROL
NOTE: ALL CASES MUST BE GROUNDED
DECIMALS +/- .030 ANGLES +/- 1 DEG
DIAGRAM WRG
TLD8
9801633
B
B REVSD FANS, ASWT, NOSE LIGHT 41915 29JUN05 LC JL
A ADDED ASWT HEATERS 30499 04JUN03 LC KK
30APR02 LC CK 28799


TYLER
PART TYPE N T S
MODEL
FABRICATED X
PURCHASED
DEPT CC W
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5. NO MANUAL REVISIONS ALLOWED.
INTERIOR TOP LIGHTS AND OPTIONAL NOSE LIGHT
OPTIONAL SECOND ROW INTERIOR TOP LIGHTS
FRONT LIGHT SHIELD ASWT HEATER
OPTIONAL MEZZANINE SHELF LAMPS AND BALLAST CONNECTIONS FOR ONE ROW OF LIGHTED SHELVES.
REAR DOOR BOTTOM FRAME ASWT HEATERS
CONNECT TO FACTORY BOND LUG OR CONNECT IN FIELD FOR ISOLATED GROUNDING TYPES
GENERAL PURPOSE RECEPTACLES 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL INDIVIDUAL CIRCUITS ARE PROVIDED
LIGHTS 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
ANTI-SWEAT HEATERS 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
FAN MOTORS, TEMP CONTROL, 120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
FACTORY BOND LUG
FIELD CONNECTED GROUND LUGS
REAR WIRE WAY
LAMP
THREE LAMP T-8 BALLAST
5123837
5124209
9808886
9043654
BLK/ORG
S1
POWER LEADS FROM OPTIONAL TEMP CONTROL
LOWER FRONT ASWT HEATER
LOWER FRONT FAN MOTORS
EVAPORATOR FAN MOTORS
THE ANTI-ARC CIRCUIT IS ONLY CONNECTED IN SERIES WITH THE BALLAST THAT POWER THE SHELF LIGHTS.
WIRE LEGEND
NO. COLOR
1 RED
2 BLUE
3 YELLOW
4 PINK
5 ORANGE
6 BLACK
7 WHITE
8 GREEN
TO 120VAC SUPPLY
BLACK
WHITE
RED
120VAC SOLENOID VALVE
SENSOR
TO 220VAC SUPPLY
220VAC SOLENOID VALVE
OPTIONAL ELECTRONIC TEMPERATURE CONTROL
NOTE: ALL CASES MUST BE GROUNDED
DECIMALS +/- .030 ANGLES +/- 1 DEG
B REV FANS, ASWTS, NOSE LIGHTS 41915 28JUN05 LC JL
A ADDED ASWT HEATERS 30499 04JUN03 LC KK
29APR02 LC CK 28799
DIAGRAM WRG
TLD12
9801634
B

# CLEANING AND SANITATION

## Component Removal and Installation Instructions for Cleaning

### Lower Trays and Screens

1. Open the front straight glass by lifting the handle at the bottom.
2. Remove product from the case interior.
3. Grasp and lift out each lower tray or screen from the bottom of the case.
4. After cleaning, replace in reverse order.

### Front Air Ducts

1. Remove lower trays or screens, see this page.
2. Lift out front air duct sections.
3. After cleaning, replace in reverse order.

### Rear Air Ducts

1. Remove lower trays or screens, see this page.
2. Remove mounting screws from rear air duct.
3. Lift out rear air duct sections.
4. After cleaning, replace in reverse order.

### Mullion Covers

1. Open the front straight glass by lifting the handle at the bottom.
2. Remove mounting screws from each mullion cover.

**WARNING**

**Mullion covers with electrical receptacles can be cleaned without removing the electrical receptacles. Do not get moisture on electrical wires when cleaning under this cover. Moisture on wires could cause premature product failure and/or personal injury or death from electrical shock.**

3. Carefully remove each mullion cover from the rear uprights.
4. After cleaning, replace and secure mullion covers in reverse order.

### End Coil Cover (TLM/TLF)

1. Open rear sliding doors at each end.
2. Remove screws and end coil covers from ends of upper coil.
3. After cleaning, replace end coil covers in reverse order.

### Refrigeration Line Cover (TLM Only)

1. Open the front straight glass by lifting the handle at the bottom.
2. Remove lower screens, see this page.
3. Remove mounting screws and refrigeration line cover.
4. After cleaning, replace in reverse order.

### Electrical Cover (TLM Only)

1. Open the front straight glass by lifting the handle at the bottom.
2. Remove lower screens, see this page.
3. Remove mounting screws and electrical cover.

**WARNING**

**Do not get moisture on electrical wires when cleaning under this cover. Moisture on wires could cause premature product failure and/or personal injury or death from electrical shock.**

4. After cleaning, replace in reverse order.

### Front Lower Cladding

1. Remove front kickplate.
2. Lift and pull out front lower cladding until rear tabs clear holes in front of frame assembly. After rear tabs are clear, pull down on cladding to clear upper tabs from slots in bottom of upper front cladding and remove cladding from case.
3. After cleaning, replace front lower cladding by inserting top tabs, then rear tabs. Make sure all tabs are securely fit in each slot. Replace front kickplate.

### Front Upper Cladding

1. Remove color band, bumper and bumper retainer from the case. See page 31.

2. Remove front kickplate.
3. Remove screws and front lower cladding. See page 22.
4. Remove screws from top and bottom of front upper cladding and remove front upper cladding.
5. After cleaning, replace front upper cladding and remaining front components in the reverse order.

## Cleaning Instructions

**WARNING**

**TYLER Refrigeration does not recommend the use of high pressure cleaning equipment on service style cases!! The sealing of front glass and end joints is critical in these cases and high pressure cleaners can penetrate and/or damage these seals. Damaged seals allow water leaks and/or air leaks that can cause poor case refrigeration.**

**CAUTION**

- **When cleaning this case, try not to introduce water into the case faster than it can be carried away by the waste outlet.**
- **Liquid chlorine bleach is corrosive to metals. The use of bleach or products containing bleach will damage metal surfaces and void the case warranty.**
- **Sanitize the case with Quaternary Ammonium Solutions (ex: KAYQUAT II, J-512 Sanitizer, SANIQUAT 512, tec...) approved per 21CFR 178.1010, followed by adequate draining and air drying. These solutions may be obtained from Kay Chemical Co., Johnson Wax Professional, Coastwide Laboratories, etc....**
- **Always use a soft cloth or sponge with mild detergent and water to clean the front glass. Never use abrasives or scouring pads to clean glass. They can scratch and/or damage the glass.**

**See "General (UL/NSF) I&S Manual" for case cleaning instructions.**

## Stainless Steel Cleaning Methods

The cleaning data in the following stainless steel cleaning chart was supplied by AISI. The information was supplied by Prime Metals Division, Alumax Aluminum Corporation.

| TYPE OF CLEANING | CLEANING AGENT* | APPLICATION METHOD** | EFFECT ON FINISH |
|---|---|---|---|
| **Routine cleaning** | Soap, ammonia or detergent and water. | Sponge with cloth, then rinse with clear water and wipe dry. | Satisfactory for use on all finishes. |
| **Smears and finger-prints** | Arcal 20, Lac-O-Nu, Lumin Wash O'Cedar Cream Polish, Stainless Shine | Rub with cloth as directed on the package. | Satisfactory for use on all finishes. Provides barrier film |
| **Stubborn spots and stains, baked-on splatter, and other light discolorations** | Allchem Concentrated Cleaner | Apply with damp sponge or cloth. | Satisfactory for use on all finishes. |
| | Samae, Twinkle, or Cameo Copper Cleaner | Rub with damp cloth. | Satisfactory for use on all finishes if rubbing is light. |
| | Grade FFF Italian pumice, whiting or talc | Rub with damp cloth. | Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes. |
| | Liquid NuSteel | Rub with dry cloth. Use a small amount of cleaner. | Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes. |

| TYPE OF CLEANING | CLEANING AGENT* | APPLICATION METHOD** | EFFECT ON FINISH |
|---|---|---|---|
| | Paste NuSteel or DuBois Temp | Rub with dry cloth. Use a small amount of cleaner. | Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes. |
| | Cooper's Stainless Steel Cleaner, Revere Stainless Steel Cleaner | Apply with damp sponge or. cloth. | Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes. |
| | Grade F Italian pumice, Steel Bright, Lumin Cleaner, Zud or Restoro | Rub with a damp cloth. | Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes. |
| | Penny-Brite or Copper-Brite | Rub with a dry cloth. Use a small amount of cleaner. | Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes. |
| **Heat tint or heavy discoloration** | Penny-Brite or Copper-Brite | Rub with a dry cloth. | Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes. |
| | Paste NuSteel or DuBois Temp | Rub with dry cloth. Use a small amount of cleaner. | Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes. |
| | Revere Stainless Steel Cleaner | Apply with a damp sponge or cloth. | Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes. |
| | Allen Polish, Steel Bright, Wyandotte, Bab-O or Zud | Rub with a damp cloth. | Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes. |
| **Burnt-on foods and grease, fatty acids, milkstone (where swab-bing or rubbing is not practical)** | Easy-Off, De-Grease-It, 4-6% hot solution of such agents as trisodium tripolyphospate, or 5-15% caustic soda solution | Apply generous coating. Allow to stand for 10-15 min. Repeated application may be necessary. | Excellent removal, satisfactory for use on all finishes. |
| **Tenacious deposits, rusty discolorations, industrial atmospheric stains** | Oakite No. 33, Dilac, Texo 12, Texo N.Y., Flash-Klenz, Caddy Cleaner, Turco Scale 4368 or Permag 57. | Swab and soak with clean cloth. Let stand 15 minutes or more according to direc-tions on package. Rinse and dry. | Satisfactory for use on all finishes. |
| **Hard water spots and scale** | Vinegar | Swab or wipe with a cloth. Rinse with water and dry. | Satisfactory for use on all finishes. |
| | 5% oxalic acid, 5% sulamic acid, 5-10% phospheric acid, or Dilac, Oakite No. 33, Texo 12 or Texo N.Y. | Swab or soak with a cloth. Let stand 10-15 minutes. Always follow with neutralizer rinse, and dry. | Satisfactory for use on all finshes. Effective on tenacious deposites or where scale has built up. |

| | | | |
|---|---|---|---|
| **Grease and oil** | Organic solvents such as carbon tetrachloride, trichlorethylene, acetone, kerosene, gasoline, benzene, alcohol and chlorethane n.u. | Rub with a cloth. Organic solvents may be flammable and/or toxic. **Observe all precautions against fire. Do not smoke while vapors are present. Be sure area is well ventilated.** | Satisfactory for use on all finishes. |

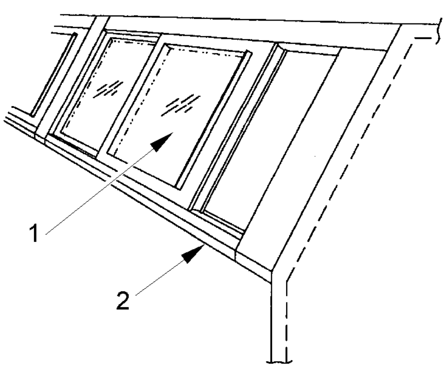
*** Use of proprietary names is intended only to indicate a type of cleaner, and does not constitute an endorsement, nor is omission of any proprietary cleanser to imply its inadequacy. It should be emphasized that all products should be used in strict accordance with instructions on package.**

**** In all applications a sponge or fibrous brush or pad are recommended. DO NOT use ordinary steel wool, steel brushes, chlorine bleach or products containing bleach for cleaning or sanitizing stainless steel.**

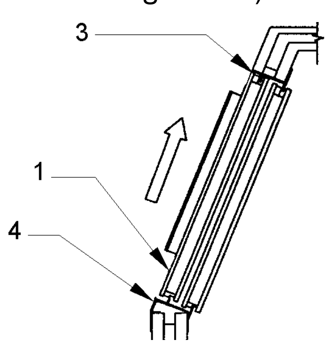
# GENERAL INFORMATION

## Rear Sliding Door Removal and Installation

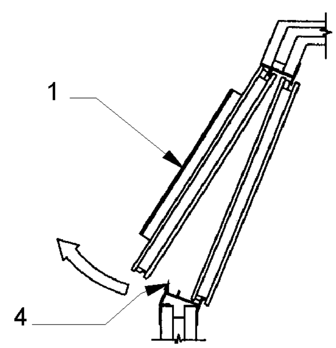
The sliding doors come installed from the factory in the door frames. These doors are removable for cleaning and to aid in case maintenance. **NOTE: DO NOT FULLY IMMERSE DOORS WHEN CLEANING.** The inner and outer doors are marked with labels from the factory. If the doors are not labeled, the inner door can be identified as having the limiter stops on it.



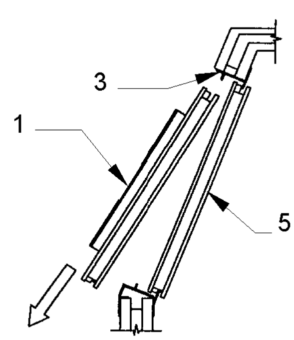

1. Remove the outer door (1) by sliding it to the right end of the door frame (2) (within an inch of being closed).




2. Firmly grasp both sides of the outer door (1) and lift into the upper track (3) until it clears the lower track (4).




3. Tilt out the bottom of the outer door (1) so it can clear the lower track (4).

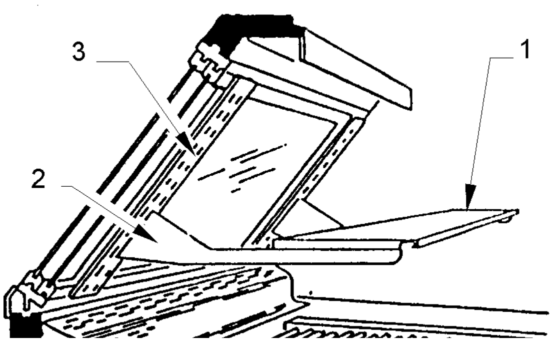



4. Lower the outer door (1) out of the upper track (3) to remove it from the case.
5. Repeat steps 1 thru 4 to remove the inner door (5).
6. Reverse the above steps to replace the inner and outer doors (5 and 1).

## Mezzanine Shelving

Mezzanine shelves are available in 10" or 12" widths. One level of shelving is optionally available for TLM and TLF cases, while two levels of shelving is available for TLD cases. The shelves can be moved forward from the mullions in two inch increments and can be locked into three positions.

Price tag moldings will be attached to the front of each mezzanine shelf with screws. To clean the price tag molding, remove screws and molding from shelves. After cleaning, reattach molding to shelves with screws.




To install mezzanine shelving, position and insert the mezzanine shelf (1) and captive shelf brackets (2) into slots in the uprights (3).

**NOTE**

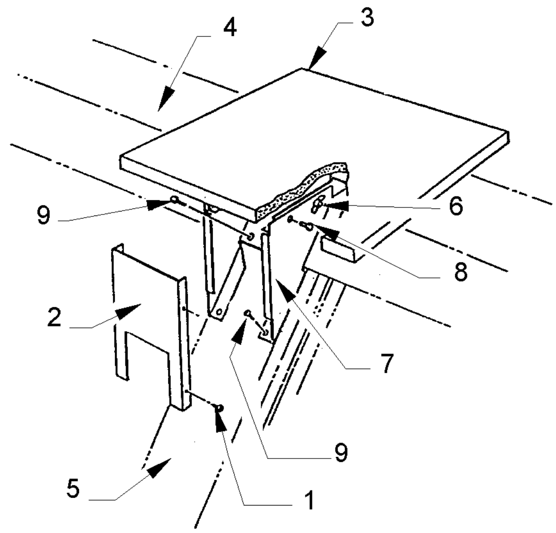
**The brackets can be moved vertically at 1" increments in the uprights.**

### Lighted Shelves

Lights are optional on the 10" and 12" mezzanine shelves. Wiring harnesses for all shelf locations are factory installed. Ballasts are optionally supplied for all shelf light sockets. The ballasts are located in the rear raceway channel behind the rear rail cover.

## Top Mounted Scale Shelf Installation

The optional scale shelf is mounted to the mullion on the back of the case. The shelf rests on the flat portion of the top of the case. Use the follow instructions to mount the scale shelf assembly.




1. Remove the screws (1) and rear cover (2) from the scale shelf assembly (3).
2. Center the scale shelf assembly (3) on the top rear of the case (4) at the selected mullion (5) location.
3. Loosen wing nut (6) on the front right side of the lower rear support (7) and the two locking capscrews (8) at the rear.
4. Adjust scale shelf (3) to sit level from front-to-rear and side-to-side. When the shelf is level, retighten the wing nut (6) and the two locking capscrews (8).
5. Drill pilot holes in the top two holes in the lower rear support (7), and start two screws (9). Check for proper shelf alignment, then tighten two screws (9).
6. Drill pilot holes thru lower two holes in lower rear support (7) and secure with two screws (9).
7. Replace rear cover (2) and screws (1) on scale shelf assembly (3).

# SERVICE INSTRUCTIONS

## Connecting the Refrigeration Piping and Components

**WARNING**

**Be sure to position a flame and heat-resistent shield over the bottom of the case liner. Heat from brazing could damage the liner and/or cause personal injury or death from fire.**

1. Remove screws and refrigeration piping cover from the left bottom of the case.
2. Position loose refrigeration piping and/or optional valves between the open lines in the bottom and upright of the case.

**NOTE**

- **Make sure all sensor and thermostat wires are clear of areas being heated.**
- **Mount all refrigeration lines off the floor to allow for cleaning access.**

3. Apply flux to all joint ends. Starting at one end, thoroughly heat each new pipe joint and braze it together. Repeat this process until all new pipe joints have been brazed.
4. After piping has cooled, route and connect thermostat and sensor wires through openings in the bottom of the case.

## Light Servicing

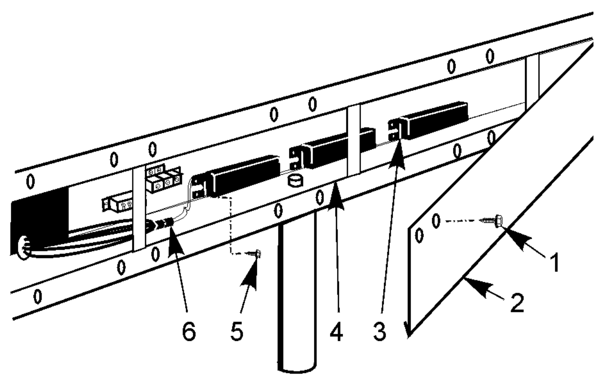
**See "General (UL/NSF) I&S Manual" for preventive maintenance, T-8 lamp, fan blade and fan motor (TLD) replacement instructions replacement.**

### Ballast and Lighting Locations

All light ballasts are located in the rear raceway channel behind the rear cover.

In order to retain safety approval with Underwriter's Laboratory and the Canadian Standards Association, the mounting of electrical components and interconnecting wires must not deviate from the following instructions. Only qualified personnel are authorized to install the accessory items. TYLER Refrigeration recommends you order all components from its Service Parts Department.

**Ballast Replacement**




1. Remove screws (1) and rear rail cover (2) from rear of case.

**NOTE**

**If tappit screws are not available, a starwasher should be used between the ballast and the heads of the screws.**

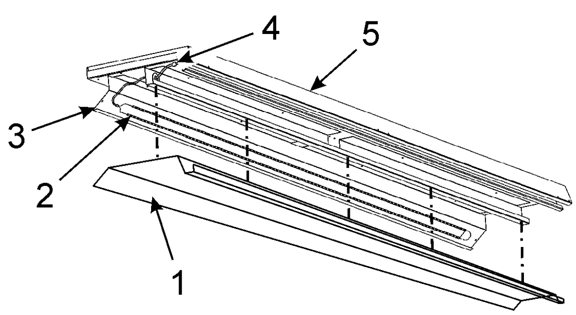
2. Install required number of ballasts (3) in rear electrical raceway (4) with two screws (5) each.
3. Identify and connect required wiring harnesses (upper, lower, etc...) to the ballast connectors (6).
4. Replace rear rail cover (2) and secure with screws (1).

## Light Shield Anti-Sweat Replacement

**WARNING**

**Shut off or disconnect power supply to case before replacing the light shield anti-sweat. Electrical power from wire ends could damage other components and/or cause personal injury or death.**

1. Open front lift glass and remove product from case.
2. Remove rear sliding doors from the case. (See page 25 in this manual.)
3. Remove screws and right rear interior corner mullion cover from interior of the case.
4. Remove light bulbs from the top light fixtures. (See page G-27 in the “GENERAL-UL/NSF Installation & Service Manual”.)




5. Remove screws and carefully lower the top light fixtures (1) from the top of the case.
6. The light shield anti-sweat (2) should now be exposed on the front interior surface of the stainless steel light shield (3).
7. Unplug or cut wires (4) (in the right rear corner mullion) to the defective light shield anti-sweat and remove anti-sweat from front interior surface of light shield.
8. Replace new light shield anti-sweat in reverse order.
9. Reconnect power to case and replace produce after the case has reached the proper operating temperature.

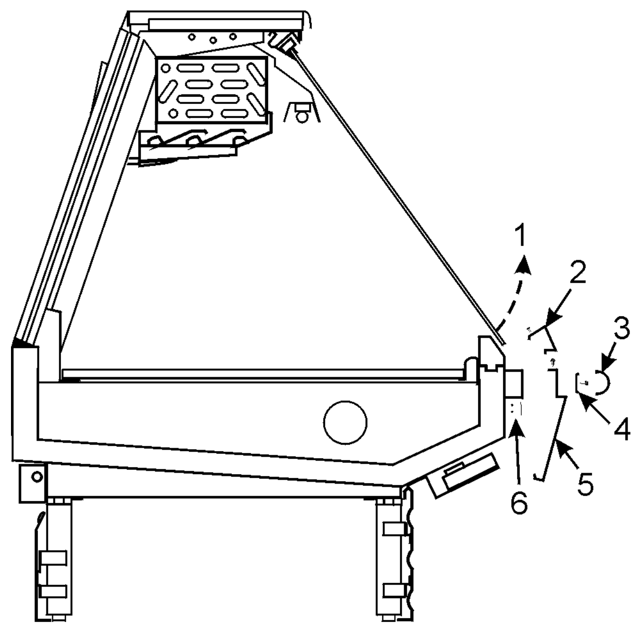
## Front Glass Anti-Fogging System Service

TLM, TLD and TLF cases have a front glass anti-fogging fan and a front glass anti-sweat heater. Use the following instructions to replace the anti-sweat heater and/or the anti-fogging fan.

**WARNING**

**Shut off or disconnect power supply to case before replacing any part of the anti-fogging system. Electrical power from wire ends could damage other components and/or cause personal injury or death.**

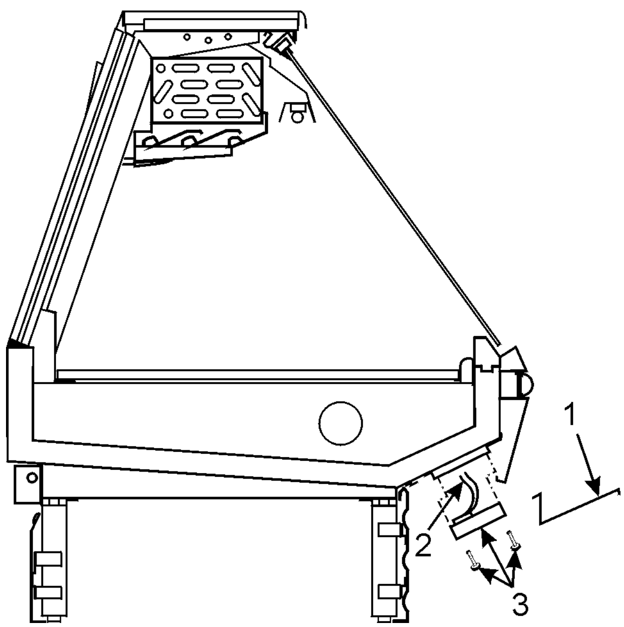
### Front Glass Anti-Sweat Replacement




1. Lift and open front lift glass.
2. Remove two screws and color band from case.
3. Remove bumper from bumper retainer.
4. Remove mounting screws and bumper retainer from front of case.
5. Remove mounting screws and front upper cladding from front of case.

6. Note position of old heater wire and foil tape. Unpug heater wire from harness connector and remove foil tape and heater wire. Install new heater wire and foil tape in same position as removed.
7. Plug-in the new heater wire at the harness connector.
8. Reinstall front cladding, bumper components and color band in reverse order.

### Front Glass Anti-Fog Fan Replacement




1. Lift and tlit out the lower front cladding to remove from front of case.

**NOTE**

**The bottom of the front upper cladding may have to be pulled out slightly to access the top fan mounting screws.**

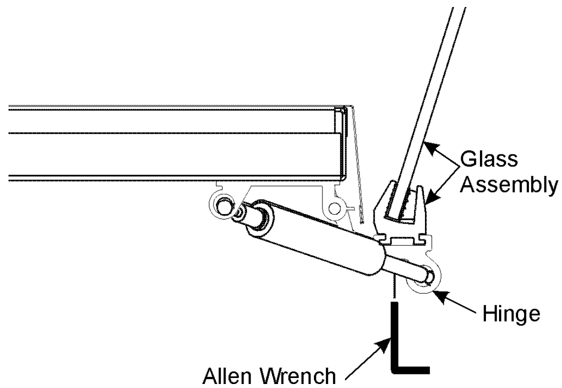
2. Disconnect defogger fan power cord.
3. Remove four screws and defective fan from fan brackets.
4. Install new defogger fan on fan brackets and secure with four screws. Reconnect the defogger fan power cord.
5. Reinstall the lower front cladding.

## Lift-Glass Replacement

**WARNING**

**Wear safety glasses and gloves and use at least two people when replacing glass. Glass is heavy and weight distribution is uneven. Mishandling of glass could cause breakage and/or personal injury.**

**If replacing glass:**




1. Raise the old glass to the full UP position.

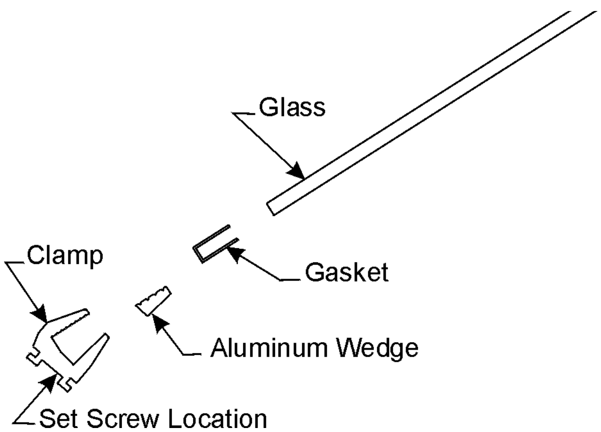
**NOTE**

**Glass is heavy and requires assistance for properly support.**

2. With assistants firmly holding both ends of the glass, loosen the set screws on the bottom of each hinge with an allen wrench. After set screws are loosened, slide old glass assembly to right or left to remove from hinges.

**NOTE**

**Note positioning and installation of top edge channel before removing.**




3. Loosen set screws in back of top edge channel.
4. Using a flathead screwdriver, push down aluminum wedge inside top edge channel, until it rests in bottom of the channel. After wedge has been released from glass, remove the old glass from the top edge channel.
5. Position the top edge channel on the new glass panel in same position as removed.

**NOTE**

**Glass must be fully inserted into top edge channel before tightening.**

6. After glass is positioned in the top edge channel, tighten each set screw until glass is held into place by the aluminum wedge. **Do not overtighten.**
6. With aid of assistants, lift and tentatively position new glass assembly in the hinge slots. Tighten the hinge set screws. **Do not overtighten.**
7. Slowly lower glass to check position. If adjustment is necessary, raise glass and have assistants hold both ends. Loosen the hinge set screws, adjust the glass assembly position and retighten set screws to secure top edge channel in hinge slot. **Do not overtighten.**

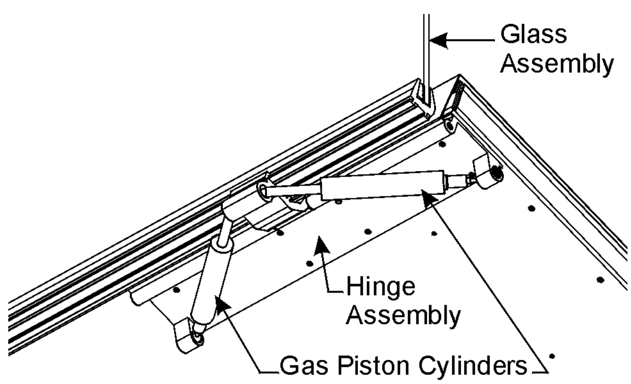
## Lift-Glass Gas Piston Replacement

**WARNING**

**The TL series cases rely upon gas pistons to assist lifting the glass and holding it in the raised position. The glass is heavy and difficult for one person to lift alone while replacing a gas piston. Use an assistant to prevent possible glass breakage and/or personal injury.**

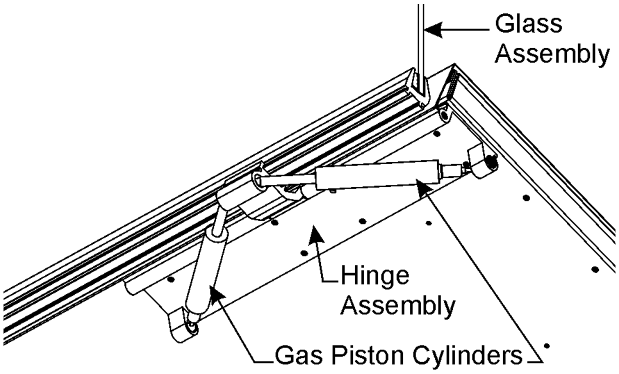
**Since gas pistons are very powerful when in compressed state, follow these cautions during replacement:**

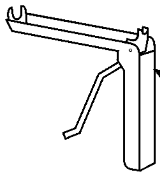
- **Do not attempt to perform any work on case while piston is in compressed state.**
- **Raise glass to full UP position before beginning any work involving gas pistons.**
- **Do not attempt to alter a gas piston in any way.**
- **Do not expose a gas piston to excessive heat.**
- **Dispose of gas piston as soon as possible after removal.**




Each lift glass panel uses four gas pistons and two hinges to support it. **Example:** 8'case has 2 lift glass panels with 4 hinges and 8 gas pistons.

1. Have an assitant lift and hold the glass in the full UP position. **Note position and relationship of all glass lift components.**




2. While lift glass is being held open, position gas piston in piston tool and squeeze tool to compress and remove the old gas piston.
3. Install new gas piston on lift glass hinges using the piston tool. Note weight capacity printed on side of piston, **example: 0500N (500 Newton)**. Replacement piston should be of same weight capacity as the piston being replaced.
4. Repeat steps 2 and 3 until all bad gas pistons have been replaced.

## Color Band, Bumper and Bumper Retainer Replacement

**NOTE**

**Color band, bumper and bumper retainer must be removed to access the upper screws in the front upper cladding.**

1. Open the lift glass and remove screws, color band and color band backers from bottom glass support.
2. Push in on center of bumper while pulling out on bottom of bumper. This will start to separate bumper from bumper retainer.
3. Make sure the bottom of the bumper is released from the bumper retainer for the full length of the case.
4. After bottom is released, firmly pull out top of bumper to snap it free from bumper retainer.
5. Remove bumper backers from both ends of the bumper
5. Mark position of the bumper retainer on front of case.
6. Remove mounting screws and bumper retainer from front of case.

**NOTE**

**Bumper backer and color band backer must be installed in same position as removed to assure proper fit and alignment during installation.**

7. Install bumper retainer on front of case with mounting screws in same position as removed.
8. Position bumper backers in ends of bumper sections still installed, so half of the bumper backers are still exposed.
9. Replace the bumper on the bumper retainer.
10. Position color band backers under ends of color bands still installed, so half if the color band backer is still exposed.
11. Replace color band on bottom glass support and secure with screws.

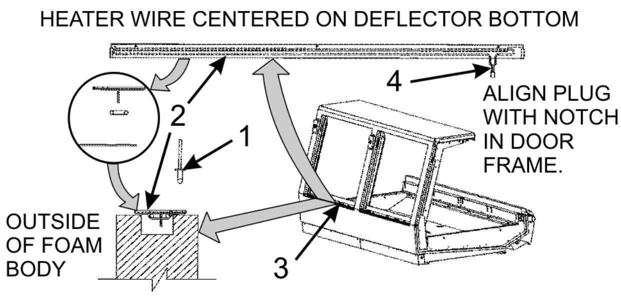
## Anti-Sweat Heater Wire Deflector Kit Replacement (TLD Only)

All TLD models have anti-sweat heaters under each lower rear door frame. Use the following instructions to replace an anti-sweat heater wire deflector kit.

**WARNING**

**Shut off or disconnect power supply to case before replacing any part of the anti-sweat heater wire deflector kit. Electrical power from wire ends could damage other components and/or cause personal injury or death.**

1. Remove product from case.
2. Remove rear doors from door frame that has defective anti-sweat wire. (See page 25 in this manual.)
3. Remove screws and door frame from rear of case.




4. Drill out three rivets (1) securing the anti-sweat heater wire deflector kit (2) to the bottom of the door opening (3).
5. Unplug or cut wires to anti-sweat heater wire (4) and remove defective deflector kit (2) from case.
6. Install new anti-sweat heater wire defelctor kit (2) in reverse order making sure not to pinch the anti-sweat wires (4) under the deflector plate.
7. After doors have been reinstalled, reconnect power to case. Replace product in case after operating temperature has been established in the case.

# PARTS INFORMATION

## Operational Parts List

| **Case Usage** | | **Domestic** | | |
|---|---|---|---|---|
| Electrical Circuit | | 115 Volt 60 Hertz | | |
| Case Size | 4’ | 6’ | 8’ | 12’ |
| Fan Motor (TLD) | 5125532<br>5 Watt | 5125532<br>5 Watt | 5125532<br>5 Watt | 5125532<br>5 Watt |
| Fan Motor Brackets (TLD) | 5962269 | 5962269 | 5962269 | 5962269 |
| Fan Bracket Plate (TLD) | 9041077 | 9041077 | 9041077 | 9041077 |
| Fan Blades (7” 25° 5B) (TLD) | 5236974 | 5236974 | 5236974 | 5236974 |
| Rocker Switch | 5961377 | 5961377 | 5961377 | 5961377 |
| Rectangular Outlet | 5236335 | 5236335 | 5236335 | 5236335 |
| T-8 Lamp Ballast<br>(canopy)(1-row) | 5991029 | 5991029 | 5991029 | 5991030 |
| (opt. can.)(2-row)(TLD) | 5991029 | 5966635 | 5966635 | 5991030 |
| (opt. shelf)(per row) | 5991029 | 5991029 | 5991029 | 5991030 |
| (opt. nose light)(1-row) | 5991029 | 5991029 | 5991029 | 5991030 |
| T-8 Lampholder (canopy) | 9041897 | 9041897 | 9041897 | 9041897 |
| T-8 Shelf Harness | 9027906 | 9027906 | 9027906 | 9027906 |
| Anti-Sweat Heater Wire<br>Front Glass | 9053334 | 9053333 | 9053332 | 9053331 |
| Light Shield (TLD) | 9053348 | 9054671 | 9054670 | 9053342 |
| Anti-Fog Fan Motor | 9801270 | 9801270 | 9801270 | 9801270 |
| Anti-Sweat Heater Wire Deflector Kit<br>Lower Rear Door Frame (TLD) | 9811112 | 9811113 | 9811112 (2) | 9811112 (3) |
| Hydro-Lift Gas Piston<br>(300 N)(4 per glass panel) | 5152395 | ----- | 5152395 | 5152395 |
| (200 N)(2 per glass panel) | ----- | 9801274 | ----- | ----- |
| (100 N)(2 per glass panel) | ----- | 9808900 | ----- | ----- |
| Hydro-Lift Piston Tool<br>(Required to remove pistons) | 5152656 | 5152656 | 5152656 | 5152656 |
| Suction Solenoid Valve | 5191445 | 5191445 | 5191445 | 5191445 |
| Electronic Thermostat | 9043552 | 9043552 | 9043552 | 9043552 |
| Check Valve (TLM) | 5199417 | 5199417 | 5199417 | 5199417 |

**For information on operational parts not listed above contact the TYLER Service Parts Department.**

## Cladding and Trim Parts List

| Item | Description | 4’ | 6’ | 8’ | 12’ |
|---|---|---|---|---|---|
| 1 | Rear Top Cladding, BRT/SS | 9808686 | 9802641 | 9802642 | 9802643 |
| 2 | Color Band, Ptd. | 9808701 | 9802209 | 9800737 | 9801600 |
| 3 | Color Band Joint Trim, Ptd. | 9801776 | 9801776 | 9801776 | 9801776 |
| 4 | Bumper Retainer, Std. | 9808709 | 9802219 | 9801302 | 9801610 |
| | Bumper Retainer, Opt. Adv. | ----- | 9025052 | 9025058 | 9025061 |
| 5 | Screw | 5183536(8) | 5183536(12) | 5183536(16) | 5183536(24) |
| 6 | Bumper, Std. 2” | 9808710 | 9801609 | 9801303 | 9801609 |
| | Bumper, Opt. Adv. | --------------------- | color per order | --------------------- | |
| 7 | Bumper Backer, Opt. Adv. | --------------------- | color per order | --------------------- | |
| 8 | Upr. Frt. Cladding, Ptd. Std. | 9808705 | 9802215 | 9800726 | 9801604 |
| | Upr. Frt. Cladding, Opt. Adv. | ----- | 9802961 | 9802965 | 9802969 |
| | Screw | 5183536(6) | 5183536(8) | 5183536(9) | 5183536(11) |
| 9 | Upr. Frt. Clad. Joint Trim Std. | 9801780 | 9801780 | 9801780 | 9801780 |
| | Upr. Frt. Clad. Joint Trim, Opt. | 9802990 | 9802990 | 9802990 | 9802990 |
| | Screw | 9024814(4) | 9024814(4) | 9024814(4) | 9024814(4) |
| 10 | Frt. Kickplate Assembly, Std. | 9808763 | 9802257 | 9801630 | 9801631 |
| | Frt. Kickplate Assembly, Opt. | ----- | 9803565 | 9803566 | 9803567 |
| 11 | Kickplate Joint Trim, Std | 9801770 | 9801770 | 9801770 | 9801770 |
| | Screw | 5619204(4) | 5619204(4) | 5619204(4) | 5619204(4) |
| 12 | Lwr. Frt. Cladding, Std. Ptd. | 9808746 | 9802220 | 9800733 | 9801596 |
| | Lwr. Frt. Cladding, Opt. Ptd. | ----- | 9803253 | 9803257 | 9803561 |
| 13 | Lwr. Frt. Cladding Joint Trim | 9801784 | 9801784 | 9801784 | 9801784 |
| | Opt. Frt. Cladding Joint Trim | 9803249 | 9803249 | 9803249 | 9803249 |
| | Screw | 9024814(4) | 9024814(4) | 9024814(4) | 9024814(4) |
| 14 | Pipe Leg, Std. (2” X 9.75”) | 9024894(4) | 9024894(6) | 9024894(6) | 9024894(8) |
| | Pipe Leg, Opt. (2” X 6.00”) | 9024893(4) | 9024893(6) | 9024893(6) | 9024893(8) |
| 15 | Horizontal End Trim | 9037279 | 9037279 | 9037279 | 9037279 |
| 16 | Glass Stop Joint Trim, Ptd. | 9801774 | 9801774 | 9801774 | 9801774 |
| 17 | Base End Close-off, Ptd. (per patch end)(not shown) | 9801852 | 9801852 | 9801852 | 9801852 |
| | Opt. Base End Close-off, Ptd. (per patch end)(not shown) | 9803177 | 9803177 | 9803177 | 9803177 |

| Item | Description | 4’ | 6’ | 8’ | 12’ |
|---|---|---|---|---|---|
| 18 | Raceway Cover, Ptd. | 9801263 | 9802224 | 9801263(2) | 9801263(3) |
| | Screw | 9043080(5) | 9043080(5) | 9043080(10) | 9043080(15) |
| 19 | Lwr. Rear Joint Trim, Ptd. | 9801802 | 9801802 | 9801802 | 9801802 |
| | Screw | 9024814(4) | 9024814(4) | 9024814(4) | 9024814(4) |
| | Opt.Lwr. Rr. Joint Trim, BRT SST | 9802645 | 9802645 | 9802645 | 9802645 |
| | Screw | 5199134 (4) | 5199134(4) | 5199134(4) | 5199134(4) |
| 20 | Upr. Rear Joint Trim, Ptd. | 9801806 | 9801806 | 9801806 | 9801806 |
| | Screw | 9024814(4) | 9024814(4) | 9024814(4) | 9024814(4) |
| 21 | Refrig. Line Cover (NLM) (Not Shown) | 9024864 | 9024864 | 9024864 | 9024864 |

